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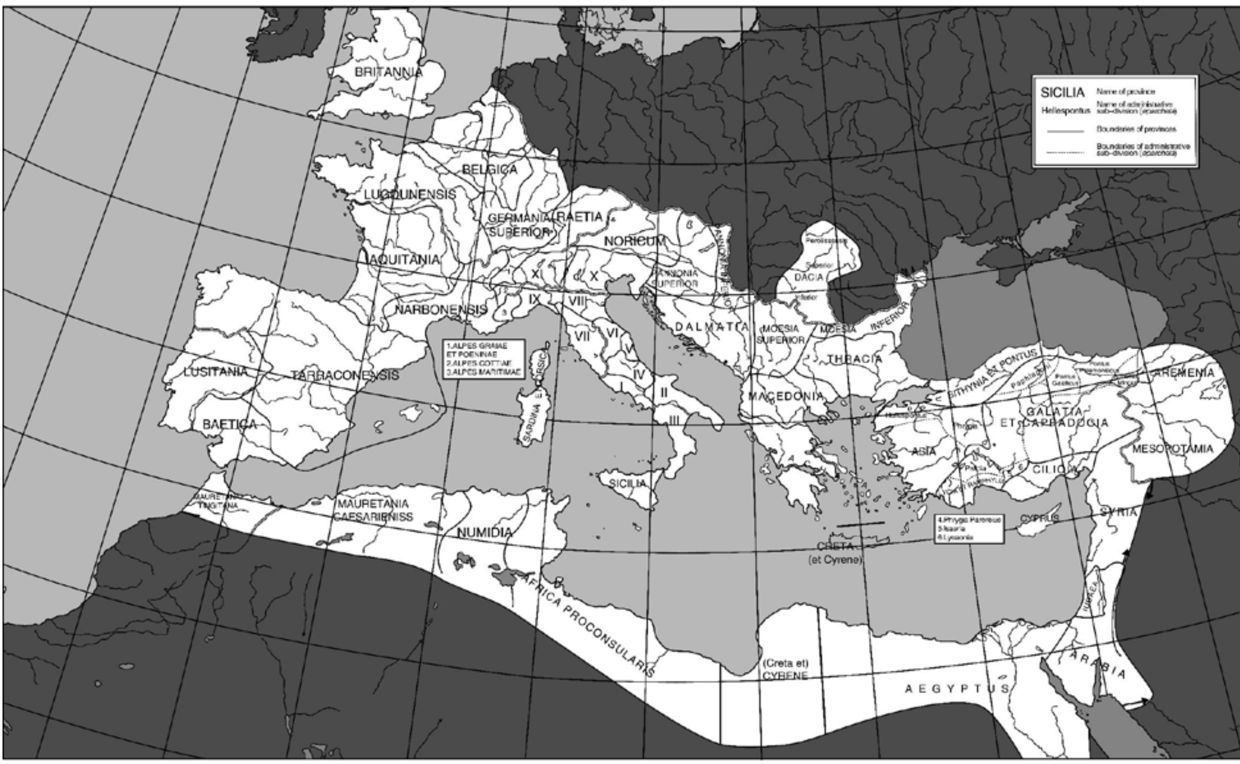
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Map 1 Map of the Roman Empire.



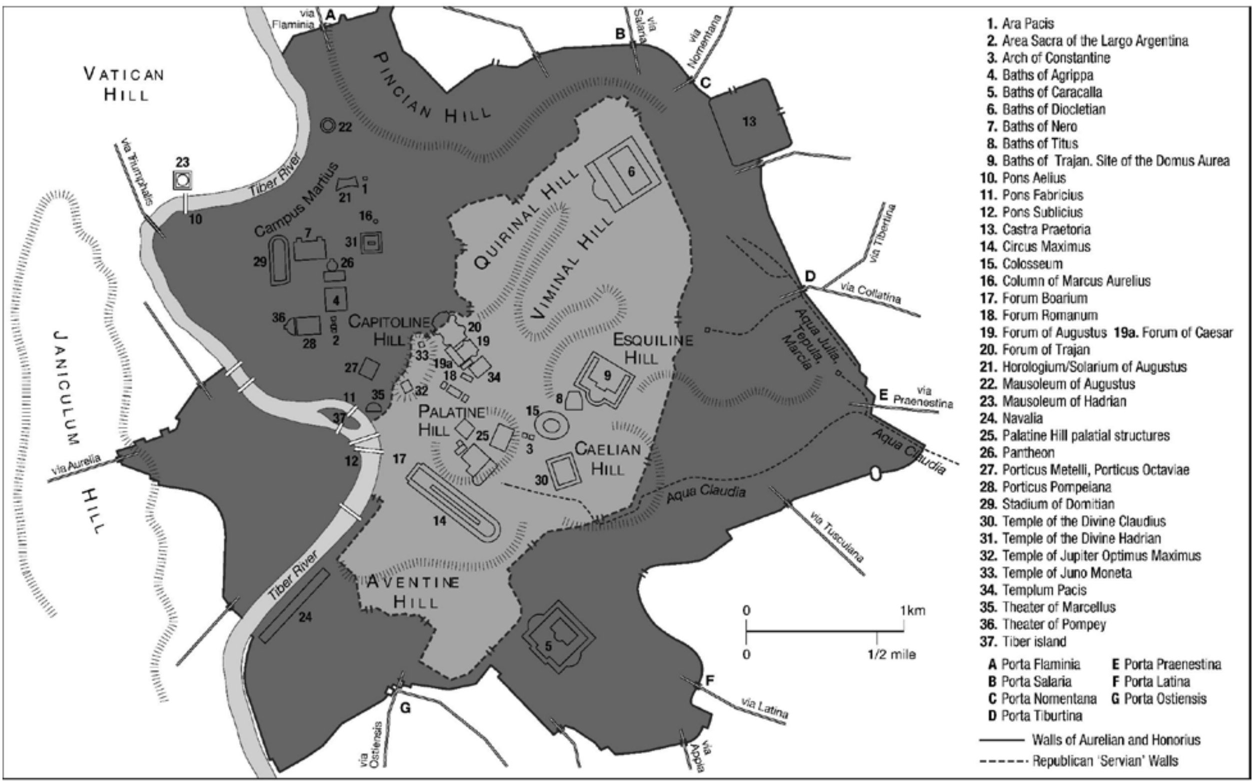
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Map 2 Provinces of the Roman Empire.



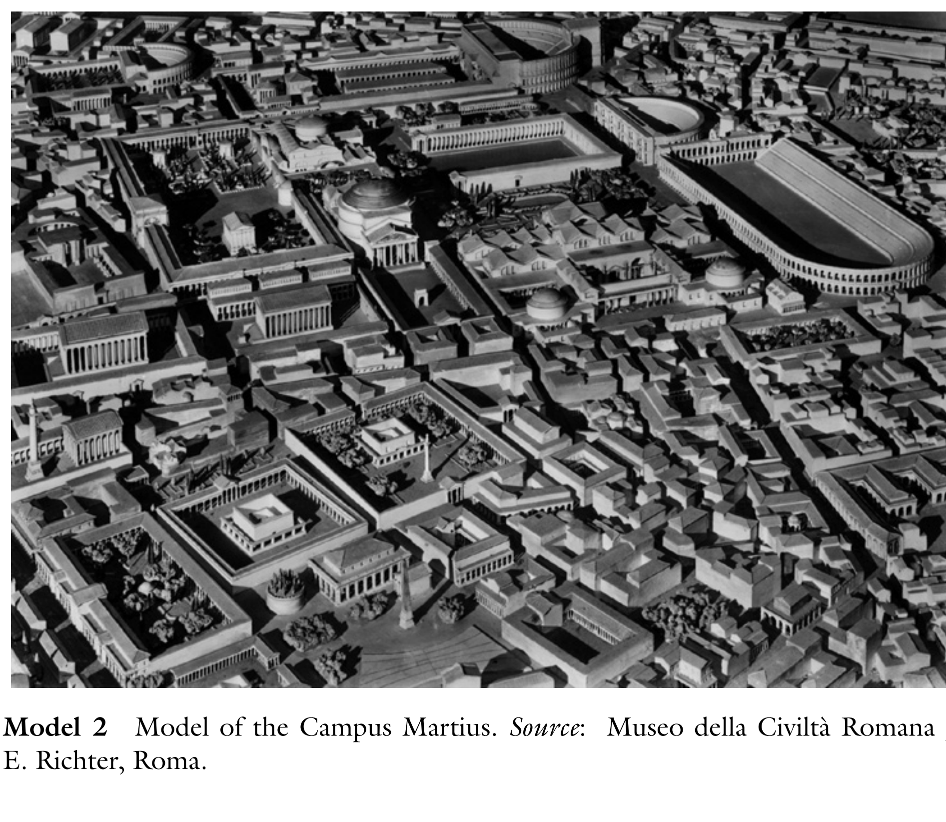
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Model 1 Model of the Capitoline Hill and the Roman Forum. *Source*: Model of Rome, Roman Forum between Capitoline and Colosseum. Fototeca Unione neg. no. 11763 (F).



Model 2 Model of the Campus Martius. *Source*: Museo della Civiltà Romana / E. Richter, Roma.

Introduction

The architecture of Rome's great Empire has long captured our imagination. The Romans themselves were enamored with their built environment. Ancient authors were just as likely to celebrate the grandeur and beauty of ancient buildings as they were to decry their excess, Nero's Domus Aurea being a notable example of the latter. Within Roman literature the emphasis on space – from Ovid's fascination with the lascivious activity sheltered within Augustan porticoes to Statius's awe at the soaring heights of the imperial palace – more broadly demonstrates a keen desire to explore its symbolic import. Since antiquity, the ruins of Rome's storied past have appealed to a broad spectrum of society, at once inspiring emulation and, like the slave who accompanied the emperor in his triumph, reminding viewers of the transience of human accomplishment. Roman architecture has provided the formal templates for reimagining western architecture over the past 500 years, yielding architectural treatises ranging from Leon Battista Alberti's *Ten Books of Architecture* to Robert Venturi's *Complexity and Contradiction in Architecture* and monumental realizations from Palladio's Villa Capra ("La Rotonda") to James Stirling's Neue Staatsgalerie. Its iconic structures have fueled a thriving economy in entertainment and tourism that once drew the aristocratic gentry and now caters to a global consumer market. Yet, for all its glory, Roman architecture also stands as a sober testament to a fallen empire and as such has become the conceptual space for contemplating time, mortality, and hubris in a range of media, from the writings of Edward Gibbon and Marguerite Yourcenar to the films of Federico Fellini and the poetry of John Keats.

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The ubiquity of Roman architecture and the scale and sheer human effort represented by its enduring physical traces account for its longstanding fascination. Growing from its prehistoric and republican roots, Roman building spread throughout the Italic peninsula and made its mark across a sprawling empire spanning modern-day Europe, North Africa, and the Middle East. The extant structures have preserved a full spectrum of spaces that accommodated every aspect of Roman life – public to private, secular to sacred, high to low. Whether highlights on a bus tour or overgrown ruins known only to the specialist, their forms are equally important in manifesting complex negotiations between the historically contingent categories of Romans and non-Romans, free and servile, Rome and her environs, and the past and present.

While Roman architecture was the self-conscious product of particular historical moments, critical to its development throughout history was interaction among diverse cultures of the Italic peninsula and the broader Mediterranean world. During the earliest phases of this process, Latin tribes were receptive to ideas learned from their non-Latin neighbors; they drew upon their own ingenuity and the natural resources around them, discovering the properties of materials and developing along the way principles of form and spatial organization that would ultimately become deeply rooted traditions for their descendents, those peoples who were to become "Romans." New structural and decorative forms were soon introduced by colonists arriving in Italy from Greece, and eventually direct contact with the Greek cities of the eastern Mediterranean through trade and warfare exposed the growing city of Rome to new materials and design principles that were adapted and absorbed to the prescripts of more ancient Italic traditions. Over time, the physical structure of these buildings, the spaces they enclosed, and the views they framed, succeeded in accommodating and imparting a sense of what it was to be "Roman," an identity always subject to experience, time, and place. Familial hierarchies, civic administration, ritual and sacrifice, leisure, entertainment, simple routines of movement throughout the day, and finally death itself were accommodated, regulated, and codified through the built environment.

From an early stage, the development of Roman architecture and the forms that it took were shaped by its association with the socio-political authority of individuals and communities. The Roman patron seemed to understand intuitively the power of the built environment to proclaim superiority over his competitors, and to enforce social hierarchies that favored the status quo. By the dawn of the imperial period, architecture in Rome declared the city's far-reaching authority, through its display of imported marble and colored stones, looted sculpture and other valuables seized from conquered lands that adorned its surfaces and interiors, and enslaved labor that made building on a grand scale possible. At the same time, the design, construction, and decoration of

provincial architecture addressed the oft-conflicting demands of imperial, regional, and local identities. Just as local potentates curried favor with the Capital through construction projects designed to echo through design, materials, and eponymous dedication the signature buildings of Rome, they raised buildings that responded to the needs of their local context and identity.

Today Roman architecture is a rich field of study, its interests and debates enlivened and largely reframed by the intensive scholarly inquiry of the past 20 years. New archaeological discoveries, both in Rome and in the provinces, have significantly expanded the corpus of Roman architecture, and technological advances have provided new tools for the recovery of archaeological data and for the examination and analysis of ancient spaces, from isolated buildings to entire city plans. As a result, scholars have been able to reassess traditional historical accounts and broaden our understanding of historically neglected or elusive periods, lesser-known sites in provincial settings, and canonical building types. While formalism continues to play an important role in Roman architectural studies both in comprehensive treatments and more focused works (i.e., on single building types), the past 20 years reveal a desire to understand form as one factor in a complex nexus of Rome's cultural production and reception. Rather than treat architecture as an image of static monumentality, scholars have increasingly drawn attention to the dynamics of its form, from the numerous studies on the design and construction process made possible by new technologies to those examining ancient and modern reception of these spaces. In the process, the longstanding structural and monumental definition of Roman architecture has yielded to a more expansive understanding that highlights the interplay of space and ornament, especially in domestic architecture, the role of landscape within and beyond Rome's built environments, the interaction among inscriptions, facades, and streets, and the importance of ephemeral materials and temporary structures.

The desire to understand Roman architecture as an integrated cultural practice, encompassing a range of factors from design to reception, has resulted in interdisciplinary approaches that examine the dynamic interplay among aesthetics, social structure, politics, and geography in the production and use of Roman architecture. In particular, scholars have highlighted the relation among design, artifacts, and social ritual in the Roman house, patronage and design, the gaze and social control, the permeability of public and private aesthetics, the social dimensions of the urban environment, and the role of architecture in negotiating provincial identity. Even Vitruvius, whose classification system has long underpinned the modern historiographic narrative, has been the subject of contextualized readings that draw attention to the political and philosophical significance of his text.

Despite the wealth of new work, the most recent comprehensive treatments of Roman architecture for English speakers, ranging from handbooks to more encyclopedic studies, appeared primarily in a roughly 20-year period from 1960 through the early 1980s. These include the works of Frank Brown, Mortimer Wheeler, Axel Boëthius, John Bryan Ward-Perkins, Frank Sear, and William MacDonald. Although the chronological and geographic scope of these reviews vary, and the depth of treatment is necessarily limited, they share a formalist approach to Roman architecture and urban planning organized according to chronological and typological narratives. The most influential among them has been *Etruscan and Roman Architecture*, a collaboration between Boëthius and Ward-Perkins first published in 1970 and still in print (now in two volumes). The single most comprehensive treatment of the subject ever undertaken, this book examines the chronological development of Roman architecture in Rome and Italy from the Etruscans through Late Antiquity and offers the first serious overview of Roman provincial architecture in any language. Of course, if we were to include important books on the topic of Roman architecture in other languages, this list would be greatly expanded. Some of these, such as Jean-Pierre Adam's *La construction romaine: Matériaux et techniques*, have been translated into English; others, such as the influential overviews written by Pierre Gros or, for the city of Rome specifically, Filippo Coarelli, remain in their original languages.

Rather than attempt an encyclopedic review of Roman architecture, this volume highlights new discoveries and approaches by updating the longstanding historiographic attention to periodization and typology and by addressing the dynamic processes of architectural creation and reception. The volume begins with a six-chapter overview of Roman architectural design from the Iron Age to the early fourth century. Divided according to the traditional periodization of the field, the chapters examine distinctive architectural design features within a specific historical context while identifying continuities among them. Chapters 7–10 consider the underlying processes of Roman building – planning, construction techniques, the supply of building materials, and organization of the labor force – in order to shed light on the social, economic, and logistical negotiations and choices that shaped the final works. The overview of design and process sets the stage for a more focused study of canonical building types and spaces (both urban and rural, public and private) that structured and reflected the social practices of the Roman world. Each of the chapters 11–20 draws attention to the origin and development of a given typology within changing geographical, political, and social contexts. The volume closes with five chapters that selectively address the reception of Roman architecture from antiquity to the present day, reflecting on ancient representations and contemporary archaeological practices as dynamic media continually reassessing the relationships between the past, present, and future.

By selectively focusing on the major issues, and approaches that have transformed scholarly understanding of Roman architecture over the last two decades, it is hoped that this volume will not only serve as a useful teaching and reference work for those interested in beginning a systematic program, but also a source of inspiration to explore the field and the broader questions that it raises.

The editors of this volume are grateful for the participation of colleagues working on both sides of the Atlantic whose contributions have made this project possible. Many of the essays represent a kind of summary statement from an individual scholar who has devoted many years, if not decades, of study to the particular topic at hand. Others are written by those who represent the new generation of academics who will move the study of Roman architecture forward in the decades to come. Every contributor has active research projects and associated commitments; the editors wish to express their appreciation for the time taken by each to help bring this project to its conclusion. A brief biographical sketch of each contributor is included. Abbreviations of ancient sources follow the convention of the *Oxford Classical Dictionary*, while journal abbreviations adhere to that of *L'Année Philologique*.

CHAPTER ONE

Italic Architecture of the Earlier First Millennium BCE

Jeffrey A. Becker

Introduction

The origins of Roman architecture have long been sought, as its iconic and widespread form exerts influence even in the post-modern world. Recent scholarship has addressed the role played by social processes in the generation of a recognizably Roman material culture and places this phenomenon toward the end of the first millennium BCE (Elsner 1995b; Hölscher 2004; Stewart 2008). These studies are immensely valuable for examining the material culture of the Roman Republic and the ensuing imperial period, yet this same culture may be set in an even sharper focus by situating it against the background of deeply rooted Italic traditions that inform, at least in part, the aspects that make it "Roman." This chapter will examine the underpinnings of Roman architecture by exploring some critical issues related to the architecture of central Italy primarily during the first half of the first millennium BCE. Four categories of buildings will be considered, namely domestic structures, civic buildings, fortifications, and sacred architecture. It can be shown that over the first half of the first millennium BCE, a tradition of indigenous construction emerged with characteristics of material and form that would continue to have a marked influence on architectural design throughout Roman history.

Roman authors in the Late Republic also sought to explain the origins of their society. Notions about the origins of architectural design received their due, especially from Marcus Vitruvius Pollio (d. after 15 BCE), whose *De Architectura* outlines numerous conventions that recommend (if not dictate)

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the way in which buildings of his time should be constructed. These writers of the late republic were, in most cases, speculating on an ancient past for which they had relatively little source material, especially in the case of scholars like Varro. One question that perhaps escaped – or did not even occur to – the minds of these writers was the degree to which the remote Italo-Roman past, a time prior to the direct contact Romans had with the Greek world from the third century BCE onwards, had much in common with the Rome of their own day.

In a curious way, archaeologists and architectural historians whose aim it is to trace the trajectory of the architectural forms and built environments of the Roman world often find themselves in a situation akin to that of Vitruvius and his contemporaries – seeking an aetiological explanation but having only fragmentary source material representative of diverse cultures occupying the Italic peninsula and spanning several centuries. It was both trade and Italy's first wave of urbanism that brought regional pockets of culture into sustained contact with one another and with a wider Mediterranean world through the agency of Punic and Greek traders. From a certain point of view, the identity question begins as early as the Orientalizing period when attractive eastern imports flooded into Italy; from that point on, separating the indigenous from the imported becomes a challenge, one that carries forward into the Roman culture of the later first millennium BCE and beyond.

This chapter offers some comments on the nature of the architecture of the Italian peninsula prior to the Hellenistic period and asks questions about the nature of indigenous architectural forms. Recent scholarly approaches to the archaeology of peninsular Italy have focused on regional (and even microregional) approaches that have dealt with settlement typology, economy, and identity, but to this point a similar treatment of architectural morphology has yet to materialize. It will prove constructive to examine the architectural traditions of central Italy across the first millennium BCE, concentrating, in this case, on forms leading up to the beginnings of the Roman conquest in the fourth century BCE and commenting on what connections may be drawn between forms across this broad timeframe. While the architecture of the bulk of first-millennium-BCE Italy is quite different, both in form and conception, from the "Roman" architecture of the first century BCE and later, one can argue that there are nevertheless elements of form that are persistent.

1. Early Domestic Architecture

In peninsular Italy, domestic architecture is the natural place at which to begin this discussion. During the Final Bronze Age (ca. 1150–950 BCE), in population centers connected with the Apennine culture across the Italian peninsula,

the most basic form of building is a fairly ephemeral hut constructed of wattle-and-daub and thatch with a beaten earth floor. At Sorgenti della Nova near Viterbo, Italy, several oblong buildings, constructed in wattle-and-daub with thatched roofs, occupy a settlement organized on a system of terraces (Negroni Catacchio 1983; Negroni Catacchio and Cardosa 2007). These buildings, sometimes referred to as "long houses," are similar to remains from the sites of Luni sul Mignone and Monte Rovello. In all cases the structures are large (15 to 17 m x 8 to 9 m), leading scholars to speculate that they may represent the dwellings of elites who enjoyed higher social standing (Bartoloni 1989: 69–70; on Monte Revello, Biancofiore and Toti 1973; on Luni sul Mignone, Hellström 1975).

Iron Age huts are well attested at the sites of what would become the great urban centers of archaic Italy, and, in a sense, those of Rome's Palatine Hill settlement have become something of an icon in and of themselves for Iron Age Italy (Figure 1.1). Among these, the so-called *tugurium Romuli* (hut of Romulus) was even iconic for ancient Romans who maintained it from the first century BCE onward as a reminder of their mythical founder (Dion. Hal. *Ant. Rom.* 1.79; Vitr. *De Arch.* 2.1.5).

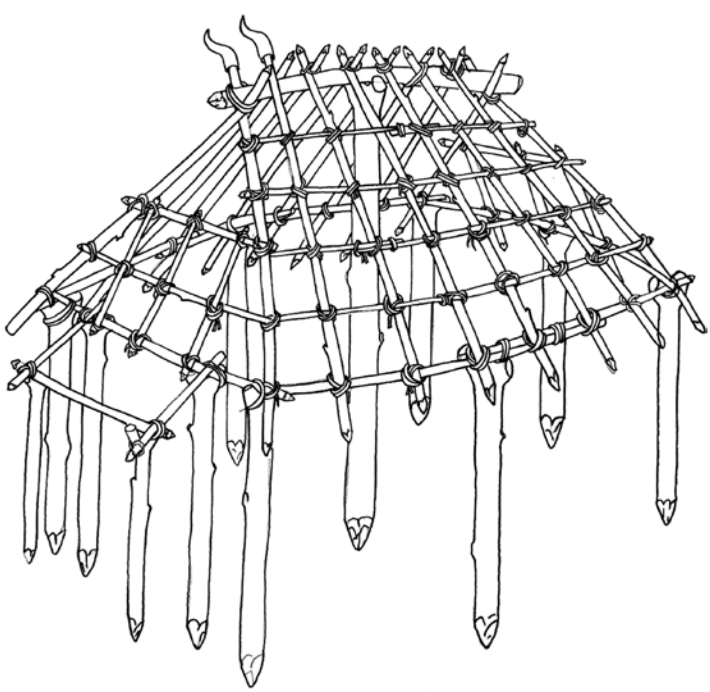


Figure 1.1 Reconstruction of an Iron Age hut. *Source*: Ulrich 2007: 92, fig. 6.1.

The footprint of these huts could be either rectangular or ovoid with a sunken floor and a superstructure that relied on vertical wooden posts to support a pitched roof covered in thatch; the walls are formed of wattle-and-daub. From a technical point of view this method involves a woven lattice of wooden strips or twigs (wattle) over which a mud plaster (daub) is applied. This plaster is highly variable in its composition, but can include wet soil or clay that can in turn be tempered with animal dung, straw, or sand. Wattle-and-daub is the likely precursor to the later Roman "in-fill" technique (*opus craticium*), known to Vitruvius (*De Arch.* 2.8.20) and employed in low-cost buildings, for example, urban *insulae* of Herculaneum, up to the first century CE. The continuity of this essentially static technique in modern Italy has been well documented (Shaffer 1993; Brandt and Karlsson 2001).

Terracotta cinerary urns modeled to resemble huts, and thus referred to as "hut urns," provide a significant evidentiary body for the form and decoration of Iron Age huts (Bartoloni *et al.* 1987). These urns, characteristic of Latium and South Etruria, correspond closely with the archaeological remains of actual huts (Figure 1.2). An urn from Vulci, taken along with others, makes the case for the actual huts having sunken floors, as archaeological remains can confirm (Bartoloni 1989: 113, Figure 5.5). The exterior surfaces of the urns tend to be decorated with linear motifs common in the Geometric period (ninth to eighth centuries BCE) while the stylized roofs include zoomorphic termini, which may reflect the superstructures of actual huts and emphasize the ridgepole. The patterns of geometric decoration tend to emphasize exterior fasciae and to concentrate on framing door and window openings. A domestic scene with two huts carved into the Verucchio Throne, dated to the first half of the seventh century BCE, also depicts the ridge log of the roof carved with birds and monkeys (Haynes 2000: 41) (Figure 1.3). In addition to offering a better understanding of actual huts, the urns also highlight the important social status of hut owners in the Iron Age. The relative infrequency of these urns in the funerary record suggests that those whose remains are contained therein enjoyed a higher than average social position.

The seventh and sixth centuries BCE brought substantial social change to central Italy and revolutionary, concomitant changes in the forms of both structures and settlements. The radical phenomenon that acts as catalyst in this period is urbanism, the emergence of the first true cities in archaic Italy (Gros and Torelli 2010). In Etruria, Latium, and Rome, this process creates large nucleated centers with substantial territorial catchment areas; the social elite and their control of territory is key to the emergence of these cities (Smith 2006; Terrenato 2011). The advent of city centers also results in the differentiation of architectural typologies in that now one can speak of the dichotomy of urban and rural architecture. In addition to the rise of elites and their culture, another key outcome of urbanism is interconnectivity, both of cities

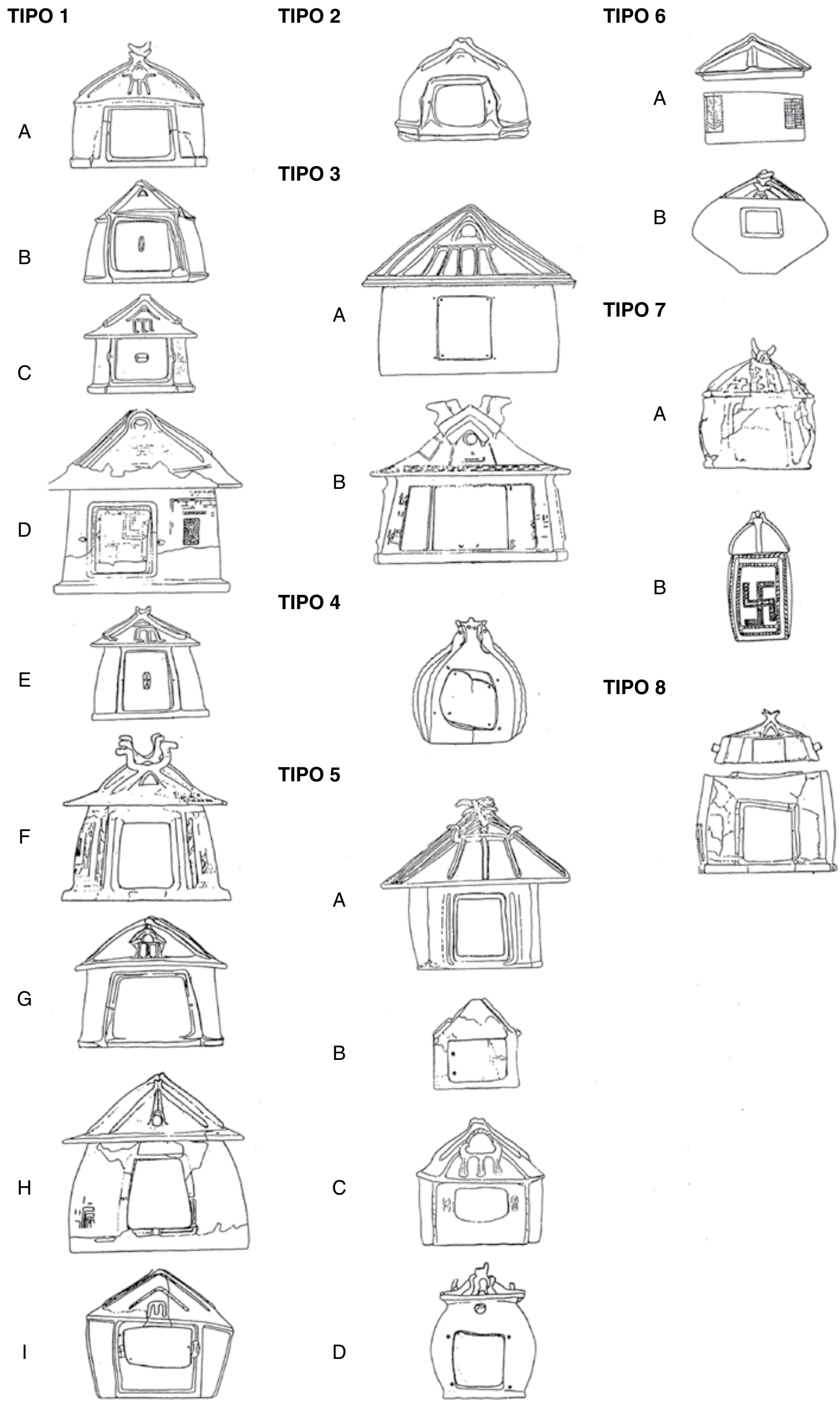


Figure 1.2 Iron Age hut urns. *Source*: Bartoloni *et al.* 1987: fig. 96.

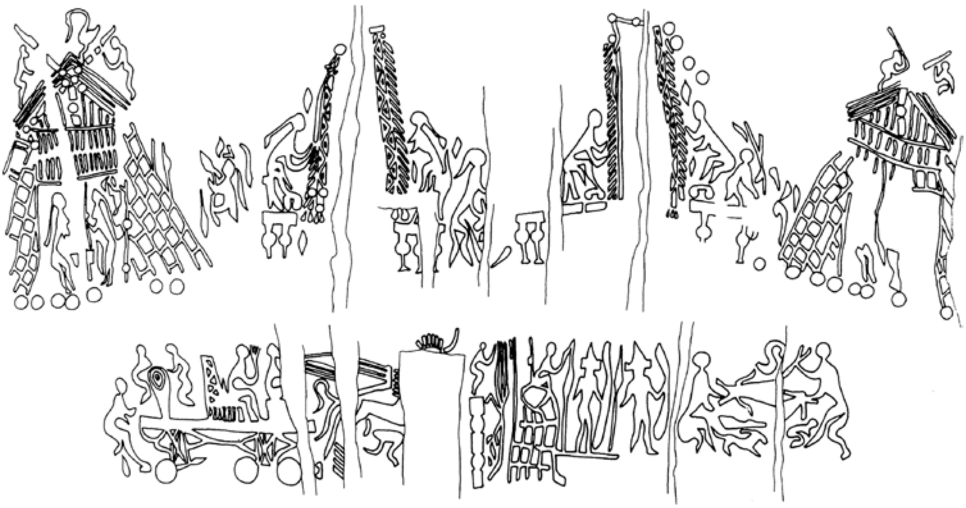


Figure 1.3 Drawing of the scene from the Verucchio throne. *Source*: Swaddling *et al.* eds. 1995: 175, fig. 5.

within Italy and between Italian cities and the wider Mediterranean world through the agency of Punic and Greek traders and Greek colonists in Sicily and Magna Graecia. The influx of imported goods for elite consumption affected the nature of Italic architecture and material culture.

While huts remained popular into the seventh century BCE, more elaborate, multi-roomed houses with rectilinear plans gradually replaced them in central Italy. Although the reasons for this shift in design from circular to rectangular structures continues to be debated (e.g., Hodges 1972), many scholars have suggested that it may be related to the greater suitability of rectangular structures within the framework of urbanized settlements, as well as to technical issues of construction. The emergence of houses with square or rectangular footprints in Etruria occurs across the seventh century BCE (Izzet 2007: 148) and is coincident with the emergence of cities with grid plans, for instance Gabii in Latium and Marzabotto in the Po plain (Govi 2007; Becker, Mogetta, and Terrenato 2009). These early rectilinear houses were built upon a stone socle with walls constructed of a variety of materials, including stone and brick (Izzet 2007: 152). Internal walls, also built from permanent materials, can now be clearly recognized within the nearly square houses. Some of the earliest known houses in Etruria with internal divisions date to seventh-century Acquarossa and sixth-century San Giovenale. These houses had either two or, in some instances, three rooms (Izzet 2007: 158). Houses with increasingly more rooms appear in sixth-century and later contexts, such as a house from Marzabotto (early fifth century) that had 16 "articulated spaces" (Izzet 2007: 158, Figure 5.6; see further discussion below). The appearance

of internal articulation suggests a diversification of function within the domestic sphere and an increasing complexity of community life, both surely a byproduct of urbanism. As house plans in Italy develop further, the incorporation of axiality and bilateral symmetry become important, perhaps influenced strongly by Hellenic models (reviewed by Sewell 2010: Chapter 4).

At Lago dell'Accesa, a mining settlement in the territory of Vetulonia, there is also substantial evidence for houses of the early sixth century BCE. Clusters of domestic architecture were discovered wherein each cluster of approximately 10 houses had its own corresponding necropolis (Steingräber 2001: 299). These houses are characterized by a ground plan that incorporated two or three rooms accessed by means of a vestibule. The houses at Lago dell'Accesa are of great interest from the morphological point of view as they have moved away from the ovoid ground plan of huts like those at San Giovenale to a more rectilinear plan, albeit still quite irregular. The adoption of this new building practice becomes more pervasive across the sixth century BCE, and it is evident in various forms in the farm at Podere Tartuchino (Attolini and Perkins 1992) and also in the area known as Zone F at Acquarossa (Östenberg 1975). In some cases, the settlements of this time period tend to be quite densely occupied and without any regular plan or organization. At Acquarossa there is evidence for a fairly dense occupation with some 70 "longhouses" and "broadhouses" discovered in a 1 hectare area of the site (Steingräber 2001: 297).

Given the relative scarcity of archaeological evidence for houses, especially those in urban contexts, during the seventh and sixth centuries BCE, Etruscan rock-cut tomb architecture has long provided another source of surrogate evidence. The chamber tombs of the Banditaccia necropolis at Caere, to cite a famous example, began in the Orientalizing period and included early tombs such as the Tomba della Capanna (early seventh century BCE) whose interior styling seems to take its cue from the interior architecture of Etruscan houses (Prayon 1975; 1986; 2010). From the seventh to the sixth centuries BCE, the interior architecture of Etruscan tombs at Caere becomes increasingly more elaborate, providing further evidence not only of interior décor, but also of interior architectural details, including roof beams and moldings, which are often used to reconstruct visions of the interiors of actual Etruscan houses. While the *tumuli* of Caere are circular in plan, the interior tomb plans are typically rectilinear. They tend to include key elements like a *dromos*, vestibule, main hall, and tomb chambers with funeral biers, all organized in a linear arrangement. At Caere and Tarquinia the tomb chamber is often carved directly from the bedrock.

Connected to the issue of Etruscan tombs as surrogate evidence for domestic architecture is the debate over the development of the internal articulation of domestic buildings in the archaic period. Since many tomb chambers have

both vestibules and main halls, the question of the origins of the Italic atrium naturally arises (see Chapter 18). While some scholars look to the Greek world for models that inspired the development of the classic atrium in Italy (Torelli 2012), during the sixth century, we find spaces in both urban and rural houses that may be identified as precursors to this central organizing feature of the later Roman house. The "House of the Impluvium" at Rusellae, built in the middle of the sixth century BCE over an earlier structure, features a tetrastyle courtyard (ca. 300 m^2) that contains a well. Donati connects this layout with the *atrium tetrastylium* discussed by Vitruvius and reconstructs a roofing system akin to those of late republican impluviate houses (Donati 1994). A portico framed the entry to the structure, and there was a sort of banqueting room, as well as a dedicated space for food preparation as indicated by the presence of a grinding stone, fireplace, and a small larder. At Gonfienti (Comune di Prato) the recent discovery of an Etruscan house dating to the late sixth to early fifth century BCE and with a footprint of 1,270 m^2 serves to reinvigorate the discussion about archaic houses in central Italy (Poggesi 2004; Cifani 2008: 275; Poggesi *et al.* 2010). This structure has a quadrangular plan centered on an internal, impluviate courtyard; at the back is a series of rooms.

The houses at Marzabotto, situated in the Po Plain, offer nearly unique evidence for domestic architecture of the late sixth to early fifth centuries BCE (Govi 2007; Bentz and Reusser 2008). The site's status as the only purported Etruscan colonial foundation marks it as something of an unusual example of Italic urbanism, for the most part because it remains without adequate comparanda. While Marzabotto's regularized layout continues to be a topic of scholarly debate, the recently discovered grid plan in the Latin city of Gabii provides a possible near chronological parallel for the evidence at Marzabotto (Becker, Mogetta, and Terrenato 2009). Regardless of the origins or rationale of the site's plan, the blocks (*insulae*) contain up to eight houses each and measure 150 m in length; the houses in turn share a common facade along the street. These houses, like Gonfienti and Rusellae, are internally articulated and include a large courtyard (Cifani 2008: 277). Part of this discussion, but resting on less secure evidence, are the *domus* excavated by Carandini on the north slope of the Palatine Hill in Rome (Carandini and Carafa 1995). Here the structure labeled as "house 3" is advanced as a proto-typical atrium house of the late sixth and early fifth centuries BCE, although this hypothesis has been put forth on the basis of insubstantial structural remains (Cifani 2008: 273–274).

In this period, roofs covered with terracotta roof tiles begin to replace the earlier tradition of thatched roofs. The advent of terracotta roof tiles is an important one, and their arrival demands a more substantial and sophisticated domestic architecture. Further, the practice of using terracotta revetment

plaques to sheath the wooden superstructures of Etruscan sacred and domestic buildings emerges in this period; Izzet points out that there is scant evidence for the manufacture of molded and painted terracotta frieze plaques and antefixes after the sixth century BCE (Izzet 2007: 163). Acquarossa provides important, early evidence for the advent of architectural terracottas. An open work terracotta *acroterion* with quadrupeds from Zone B at Acquarossa (third quarter of the seventh century BCE) demonstrates the ornamental function these terracottas assumed in the domestic context (Haynes 2000: 138–139, Figure 117). There is also evidence for the more practical use of these terracottas, including an example that serves to allow smoke to escape from the house interior (Stopponi 1985: 43, Figure 1.2).

Rural architecture also offers important evidence for construction technique and building layout in the archaic period (Figure 1.4). Particularly important are those sites investigated by Bedini, including Torrino and Acqua Acetosa Laurentina (Bedini 1978; 1979; 1980; 1981; 1984; 1990). These rural structures, for the most part, demonstrate a shared morphological tendency, namely a proto-courtyard that tends to progress from being a partially bounded corral-type enclosure to a completely englobed area within the ground plan of the structure. The phenomenon of the courtyard is evident quite early in the Via Laurentina sites, such that by the end of the archaic period one can begin to argue for the emergence of the atrium in Italic architecture (Bedini 1990). The origins of the atrium remain fairly troublesome, yet the tendency in archaic architecture strongly suggests that the atrium's origins are latent in the indigenous tradition and that it is not an imported form.

Directly related to the discussion of the courtyard house in central Italy is the issue of exclusively elite villa structures that become prominent in suburban and peri-urban contexts during the sixth century BCE. A group of these sites has been identified, chief among them the Auditorium site in Rome, discovered in 1997 (Carandini *et al.* 1997; Carandini, D'Alessio, and Di Giuseppe 2006; also, Terrenato 2001; 2007). Other sites that can be grouped with the Auditorium site include the villa at Casale Ghella and the Villa delle Grotte, the latter just a bit further north along the Via Flaminia from the Auditorium site (on Casale Ghella, Messineo, Petracca, and Vigna 1985; 1987–1988; on Grottarossa, Becker 2006). The Auditorium site has been the subject of a great deal of scholarly discussion, one manifestation of which is the final volume publishing the results. Notwithstanding entanglements connected with interpretations that include slaves and ritual activity, it is most appropriate to situate the early phases of the Auditorium site in the architectural company of late archaic palatial structures such as those known from Etruscan sites like Poggio Civitate and Acquarossa. The Auditorium site and other peri-urban elite sites that display refined building techniques and a multi-phase, monumental trajectory of development provide evidence not

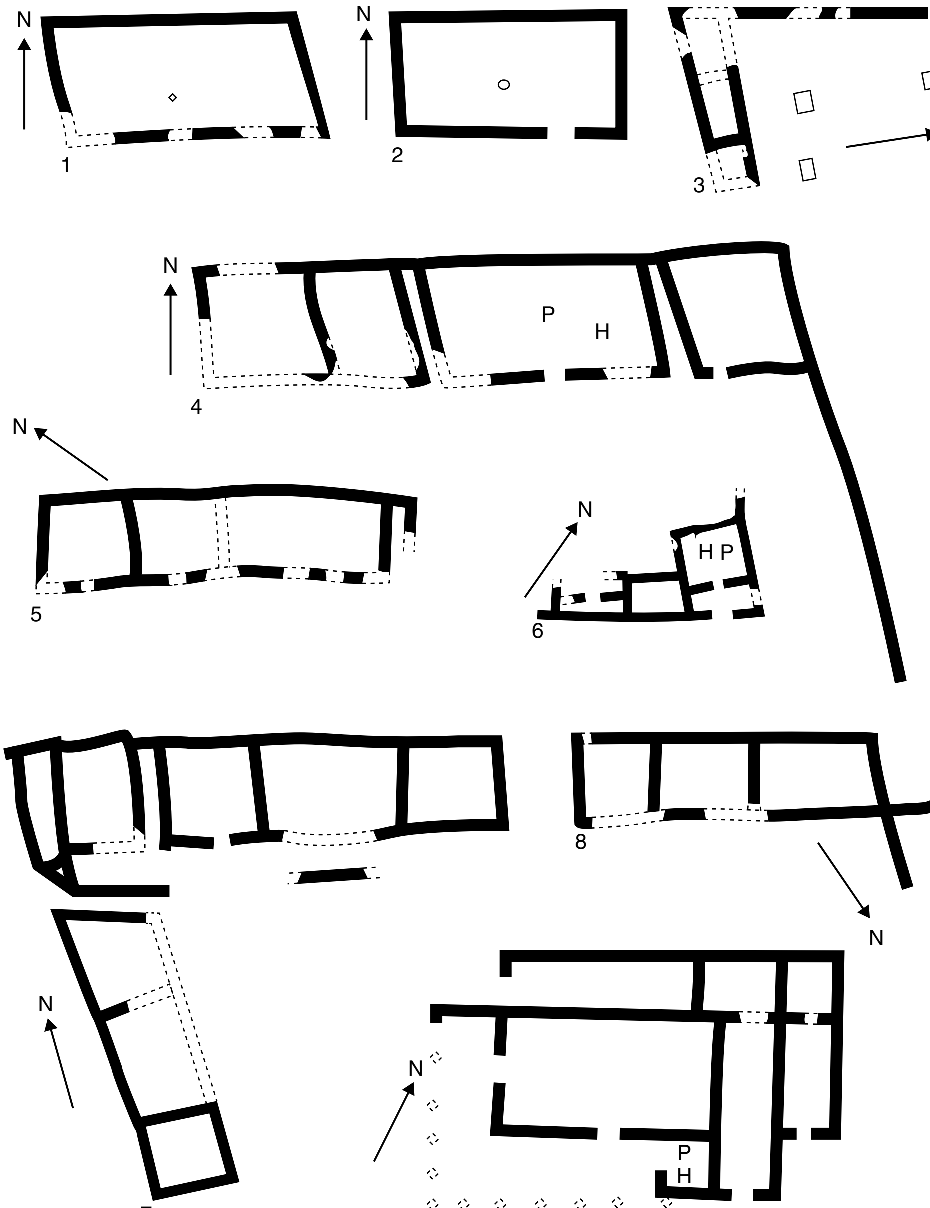


Figure 1.4 Archaic rural architecture in central Italy. *Source*: Attolini and Perkins 1992: fig. 21.

just for regular construction in ashlar masonry, but also articulation around centrally placed courtyards. As such, they likely represent the architectural grandfathers that would inspire the nouveau riche *homines novi* of the late republican period (*sensu* Terrenato 2011). Newly minted elites like the Volusii

Saturnini, for instance, relied upon the inspiration of prestige sites that still existed in the landscape since they did not have a grand ancestral tradition of their own upon which to call, much less a seat of ancestral power. These peri-urban elite sites also confirm that the link between social standing and building techniques should not be overlooked; the emergence of ashlar masonry as an elite building technique at Rome is an important development during the archaic period. Ashlar blocks (cuboidal, well-dressed masonry blocks) make up the foundations of elite structures in the increasingly monumentalized landscape of archaic Rome, notably the podium of the Temple of Iuppiter Optimus Maximus (see Chapter 9).

In Etruria, the sites of Poggio Civitate (Murlo) and Acquarossa also play a prominent part in the discussion of late archaic palatial architecture. At Acquarossa, the Zone F complex includes an L-shaped building that defines a courtyard area bounded by a colonnade, an arrangement that is also reminiscent of the arrangement of certain archaic tombs at Caere – for instance, the Tomb of the Greek Capitals. The Acquarossa structure also has a dining room that, in later Roman terms, would be called a *triclinium*. This structure, along with other parts of Acquarossa, was destroyed around 500 BCE when Volsinii annexed the territory (Haynes 2000: 141).

The archaic structure at Poggio Civitate (Murlo) also presents a case of an elite structure focused on a courtyard, this time a central courtyard surrounded on four sides by colonnades (de Grummond 1997; Turfa and Steinmayer 2002). The extent of the complex, measuring over 1,500 m^2 in the sixth century BCE, coupled with the presence of elite material culture, including bucchero pottery and architectural terracottas, suggests a locus of elite behavior and, likely, banqueting. The structure is destroyed around 525 BCE, and never again re-occupied, yet its brief floruit showcases the acme of elite architecture in the archaic period.

To this discussion one must also admit the archaic rural architecture of Latium (Acqua Acetosa Laurentina and Torrino) and Etruria (more developed examples like Gonfienti and Rusellae) that demonstrates a latent architectural tendency, that of a central, partially enclosed courtyard, as perhaps lying in the background of the full blown emergence of atrium architecture. But at what point does an atrium emerge? In 1989, Carandini advanced the argument for the villa at Selvasecca di Blera to be the earliest such structure in Italy (1989). The poorly understood chronology for the Selvasecca villa makes any evaluation of its possible role as the prototypical villa problematic at best (Berggren and Andrén 1969; Klynne 2006–2007).

One thing shared in common amongst the various elite structures and sites discussed in the paragraphs above is their rural and sometimes peri-urban status. This is intriguing both in terms of topography and also in terms of the possibility that landed elites, whose power derived from the rural lands they

controlled, lie behind the social structure of archaic central Italy and that it is these elites whose power is at work in allowing nascent urban centers to come to the forefront of the socio-political landscape (Smith 2006; Terrenato 2011: 231–244, Figure 12.4). It also is reasonable to infer that the power of these elites may be connected to the phenomenon of monumentalization in the cities of archaic Italy. This phenomenon is perhaps best represented by architecture in the civic, sacred, and defensive categories.

2. Civic Architecture

The emergence of civic architecture is an important development in the emergence of a Roman architecture. The emergence of urban centers brought new requirements, as previously independent village communities needed nodal points around which to coalesce. The most natural assembly points are sacred ones, and the linkage between the sacred and the civic is fundamental. But assembly at shrines and altars was not sufficient, especially in burgeoning settlements like Rome, where deliberate public works projects transformed the physical landscape. This is the case in the landfill project that raises the level of the valley of the Forum Romanum and eventually creates a channelized drain, the Cloaca Maxima (Ammerman 1990). This project, directed by the elites, had as its aim the creation of more in the way of usable, communal space, a key element in an archaic city, although Livy suggests that citizens did not feel that digging a sewer was worthy of them (1.56.2). Citizen assemblies were important in the archaic period both in Etruria and Latium, yet it is unclear when a purpose-built architectural context for such assemblies developed. Some republican sites, along with Rome herself, eventually developed the *curia-comitium* complex; the *curia* is a covered structure for the meeting of the council or senate and often has a tripartite internal subdivision while the *comitium* is an open-air space for the meeting of the citizen assembly. Both *curia* and *comitium* were sanctified spaces (*templa*), as we know that the councils and the assemblies could meet only within inaugurated boundaries. The Comitium at Rome and the adjacent Volcanal were the sites of various omens, including the *prodigium* of a shower of blood (Livy 39.46; 40.19). Despite the textual attestations, the archaeology of the republican Curia and Comitium at Rome is extremely fragmentary.

The very old debate about the eponymous Comitium at Rome demonstrates the multiplicity of readings that the fragmentary archaeological record make possible; it is worth noting that Ammerman's work argues convincingly for the earliest manifestations of the Comitium at Rome being connected to the natural topography (and geology) of the slope of the Capitoline Hill as early as the seventh century BCE (1996: 123–124).

A site that might be admitted as an early parallel (or even forerunner) to what would come to be the Roman *comitium* is the so-called "elliptical building" from the sixth-century-BCE Vigna Parrocchiale site in Caere (Cristofani 2003). Excavated by Cristofani, the "elliptical building" was, at one point, interpreted as a sort of sacred theater (Colonna 1993), an interpretation that has now been set aside in favor of a reading that considers the structure to be connected with the ruling elite of Caere on the basis of inscribed ceramics uncovered during the excavation (Cristofani 2003). The structure is essentially a horseshoe-shaped paved area with postholes and a series of headers that outline its margin. Even though the building is an architectural singleton of the archaic period, its importance for any discussion of civic architecture in Italy cannot be discounted. Its tendency to create an architecturally bounded, but essentially open, space may well lie in the background of later forms that include the *comitium* in the Roman context.

Comitia in republican colonies have been a subject of debate for some decades, and recent work demonstrates that there is not a one-to-one correlation between a purported colonial foundation and the presence of these structures (Becker 2007; Sewell 2010). We must also note that the morphological similarity that exists between the Roman *comitium* and the Greek *ekklesiastérion* has also been a part of the discourse. In the latter case, the site of Poseidonia/Paestum is particularly relevant. At Paestum, two separate campaigns of independent scholarly work have reached divergent conclusions about the circular structure there, demonstrating, if nothing else, that the typology and chronology of civic architecture in Italy is still in need of refinement (Greco and Theodorescu 1987; Brown, Richardson, and Richardson, Jr. 1993: 262). In a certain sense the underrepresentation of the *comitium* in the archaeological record makes the search for the origins of the form difficult.

Increased and sustained contact with the Greek world caused dramatic changes in the architecture and planning of civic spaces in Italic contexts. In the Late Republic the arrival of the basilica form changes the architectural landscape in terms of civic buildings as the basilica allows the *fora* of Roman cities to bring themselves in line with the Hellenistic fashion of portico-lined marketplaces (Welch 2003). With these new planning priorities, axial teleological symmetry becomes more of a concern, something that poses a problem for pre-existing forum spaces that try to bring themselves in line with the new conventions, famously evident in the case of Pompeii's forum. These conventions stressed not only the prioritization of a certain axis, but the end point of that axis, a point where a major sanctuary could usually be found. It must be stressed, however, that in spite of prevalent trends, there is no standardized forum and certainly each is unique, as a review of the various plans demonstrates (viz. Lackner 2008). At this stage it is clear that more inquiry into the earliest forms of civic buildings in Italy is required before we can simply declare that Roman civic forms are Greek derivatives.

3. Defensive Architecture

Ancient city walls are incredibly sturdy, and, as such, the evidence for first-millennium-BCE defensive architecture in Italy is abundant. They are similar to civic buildings in that both result from community-minded projects that require elite mobilization of manpower and material, and perhaps even corvée labor. In central Italy, fortification systems seem to begin as early as the eighth century BCE, and generally, we see an admixture of built fortifications and the use of earthworks and ditch systems (Lindenhout 1997). The patterns of Iron Age settlement in Italy tend to prefer a naturally defensible position for the establishment of a habitation, and thus it follows that these naturally defensible loci would then be further protected by the construction of built defensive systems.

The system known as "*agger* and *fossa*" represents an early approach to the need for a defensive network. This is essentially a "bank and ditch" technique, whereby the excavation of the *fossa* provides the soil to create the sloping *agger*, a sort of defensive berm of earth. The *agger* then requires two retaining walls for support. The city of Ardea had such a system by the sixth century BCE (Morselli and Tortorici 1982), while the site of Satricum may have had such a system by 600 BCE (Lindenhout 1997: 302). This same defensive system is also evident at Rome; archaeological remains of the *agger* and *fossa* are known from the Esquiline Hill (Aurigemma 1961–1962: 19–36).

Walls built in stone are also an important feature of first-millennium-BCE urban centers. Among the earliest stone-built city walls of first-millennium-BCE Italy are those of Rusellae in Etruria. Rusellae's earliest walls were constructed from sun-dried bricks and date to the later eighth to seventh centuries BCE (Bianchi Bandinelli and Laviosa 1959; Laviosa 1965). The wall in mud-brick came to be replaced by a wall built of locally quarried stones during the sixth century BCE. This wall, measuring 3.27 km in length, included five gates and projected a powerful image for the city of Rusellae (Eckstein 2006: 123). In contemporary north Etruria, other archaic cities, including Volaterrae, were also acquiring monumental circuit walls built in stone. This was the trend for other primate urban centers like Rome and Gabii, both of which have ashlar masonry fortifications by the archaic period. Rome's walls, not surprisingly, have been studied for quite some time and have undergone important recent reappraisals (Säflund 1932; Cifani 1998; 2008). One could also look to the walls of Antemnae (Quilici and Quilici Gigli 1978) and Ardea (Morselli and Tortorici 1982), as well as to the little known walls of the Latin city of Gabii, now the subject of renewed interest (Helas 2010), for evidence of early walling techniques in central Italy. These early walls also show the transition from a reliance on naturally fortified positions to the construction of purpose-built defensive systems. Such a development reflects not only the

priorities of emerging cities but also the ability of local elites to mobilize both labor and material for large-scale (if not monumental) building projects.

Megalithic walls also represent an important and visible category of architectural evidence; these are variously referred to as walls constructed using either polygonal or Cyclopean masonry. Long-attested in Italy, megalithic architecture remains a major feature of first-millennium-BCE construction. These walls employ the dry stone technique and as such do not employ bonding agents. An important example in the archaic period is the terraced settlement at Monte Carbolino (Valvisciolo) in Latium (Venanzi 1966; Quilici 1986). Here a series of switchback terraces, constructed of roughly shaped stones, provides a settlement enclosure on the mountainside. A good many of the *priscae coloniae Latinae* have polygonal masonry circuit walls, and the construction of these walls seems, most probably, to be a phenomenon of the fourth through second centuries BCE. The debate over the chronology of polygonal masonry walls has been reinvigorated lately in light of, for example, arguments advanced by Becker (2007) and Wallace-Hadrill (2008b). Coarelli (1982: 388–389) noted in passing the congruence of limestone bedrock formations and polygonal walls, that is, sites with polygonal walls have underlying calcareous bedrock; Becker (2007) advances this point in order to suggest alternate arguments about the generative force of urbanism in the Middle Republic. Wallace-Hadrill provocatively argues that in the Hellenistic milieu of the later republican period, the cities in Latium, in particular, engage in campaigns of urban renewal and that, in keeping with past traditions, employ the time honored, local practice of polygonal masonry construction.

4. Sacred Architecture

Sacred architecture in ancient Italy begins with the *templum*, the technical term for the inaugurated boundaries inside of which ritual activities, including augury, took place. At the level of terminology, Roman religion distinguished between *templum* and *aedes.* The former is a space that has been ritually cut off from the non-sanctified surroundings; the augur would create the *templum* by aligning the *auguraculum* to the cardinal points with the sacrificant facing east along the east–west axis (Beard, North, and Price 1998: 1.23). Following this procedure the space was deemed "*effatum et liberatum*" ("defined and freed"), and ritual business could be transacted there. The idea of the *aedes* or built shrine was connected to the dwelling place of the deity. As such, the *aedes* would also be constructed within a sacred precinct, and since the Italic sanctuary must serve the needs of the augurs, the built temple preserves the axiality of the non-architecturalized *auguraculum* and

underscores its augural function by being both frontal and elevated on a moderately high podium.

The organizational principles that govern Italic *templa* set them apart from contemporary Greek forms. Axiality is a key concept since the augur required a fixed point, with a known orientation, from which to observe the sky, and this occurred within the sanctified space of the *templum* (Weinstock 1932; Linderski 1986). One of the most important attested examples of an augural *templum* is to be found at Bantia (modern Banzi) in Basilicata, remains that belong to the republican period. There a series of six *cippi* inscribed with the names of divinities and celestial positions was discovered by chance in 1962, leading Torelli to reconstruct an augural *templum* at the site (Torelli 1995a), aided by ancient writers like Varro and Martianus Capella. While the ancient sources are not in complete agreement about the preferred orientation for the *templum*, the Bantia site, taken together with other known augural seats, represents important evidence for the execution of augury and its reliance on fixed orientations (Torelli 1995a: 106). The augural *templum* remains an essential component of sacred spaces in Italy, and with the emergence of new architectural traditions in the archaic period, the Italian peninsula witnesses the monumentalization of sacred spaces.

The emergence of monumental sanctuaries in Rome represents a key turning point in Roman architecture. The early twin sanctuaries of the Area Sacra di Sant'Omobono provides evidence for sacred architecture in Rome's fluvial harbor and may represent one of the earliest architecturalized sanctuaries in the city, although its chronology and phasing remain debated (Coarelli 1988a: 206–234; Terrenato *et al.* 2012). The Sant'Omobono temples demonstrate the axiality and frontality of the so-called "Tuscan style" as described by Vitruvius (*de tuscanicis dispositionibus* "about the Tuscan order"; *De Arch.* 4.6.6–4.7.5). In his treatise, Vitruvius provides the proportions that inform the tradition of these structures, while modern scholars have attempted to chronicle the extant sample of such buildings (e.g., Lake 1935).

The sixth century BCE proves even more important with the construction of the Temple of Jupiter Optimus Maximus on the Capitoline Hill (see also Chapters 11 and 24). It is perhaps, as Varro suggests, that the radical change in temple building results from the adoption of anthropomorphic cult images in Italo-Roman religion (Varro *Antiquitates rerum divinarum* frag. 18; Cardauns 1976), or perhaps the pressures of full-blown urbanism spur cities to compete with one another. The construction of the Temple of Jupiter Optimus Maximus that began in 580 BCE represents a turning point in Roman sacred architecture that coincides with other major building projects in Rome (Mura Sommella 1998; Stamper 2005; Hopkins 2010). According to Colonna, the temple plan itself changes with the introduction of both pronaos and *antae* that extend the cella and a podium that raises the temple

up and emphasizes its axiality (Colonna 2006: 154). The temple's ground plan is divided into two halves: the *pars antica* standing in front of the *pars postica*; the cella itself is tripartite with a central room and two flanking *alae*. The textual tradition holds that the Etruscan kings, the Tarquins in particular, are the agents of this phenomenon of monumentalization. Whoever the author, the effect of the enormous Capitoline Temple was profound. Its scale, measuring 54 × 74 m at the base of the podium, made it the largest structure in peninsular Italy, and its plan with tripartite cella and deep pronaos established traditional features of Roman temples that remained part of the vernacular of Italic architecture even after the Hellenization of the peninsula (Figure 1.5) (viz. Nielsen and Poulsen 1992: 118–132; Stamper 2005: 34–48). The Capitoline Temple maintains already established traditions in architecture, including a strong frontal alignment and a high podium. In addition, the adornment of the roof and roofline with acroterial sculptures recalls the stylization of the rooflines of Iron Age hut urns.

While these elements create a link between the sixth-century-BCE phase of the Capitoline Temple and the traditions of Italic architecture, it is also possible to situate the temple in a broader contemporary context. Other comparable sanctuaries include Temple B at Pyrgi (ca. 510 BCE), the Portonaccio sanctuary at Veii (ca. 500 BCE), and the "Great Temple" of Vulci (early fifth to fourth centuries BCE) (Colonna 2002). These sanctuaries all demonstrate morphological similarity with the Capitoline Temple, relying upon the deep *pronaos* with prostyle columns and high podia. The coroplastic decoration of the superstructures of these temples also unifies them as a group, and these remains, in fact, provide some of the best opportunity for assigning stylistic chronology to the phases of these sanctuaries (Brown, Richardson, Jr., and Richardson 1960; Taylor 2002). Winter's most recent work approaches coroplastic decoration as an important indicator of status, an approach that should find wide acceptance (2009). These architectural terracottas are clear markers of elite status and prerogatives as they adorn high value archaic building projects.

In Anglophone scholarship the example of Cosa in south Etruria has been used to create stylistic chronologies for architectural terracottas (Brown, Richardson, Jr., and Richardson 1960). Yet recent work has reexamined the way that Cosa has been used as an index to interpret other Capitolium-type temples in Italy and suggests that a scheme less complex than the one originally proposed ought to be adopted (Taylor 2002). The wider phenomenon of temple dedication and construction in the Middle Republic is quite important as it carries forward the Tuscan temple style; numerous sites, including Rome, offer evidence for temples in this period, although the temple at Signia is perhaps the best published (Coarelli 1987; Ziòłkowski 1992; Cifarelli 2003). middle republican temple building will eventually collide with Hellenism in

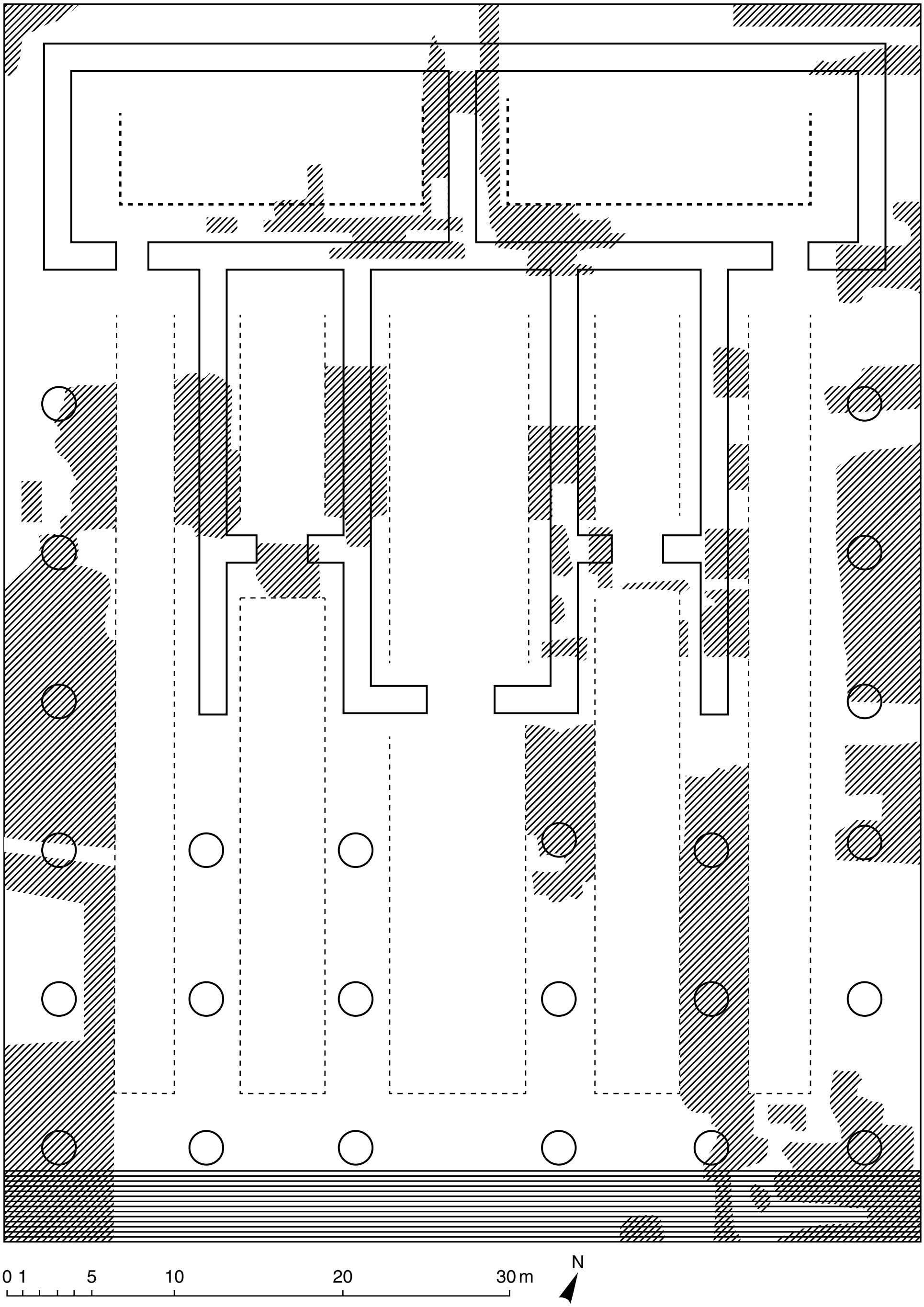


Figure 1.5 Plan of the Temple of Jupiter Optimus Maximus. *Source*: Mura Sommella 1998: fig. 6.

Italy and thus produce interesting forms ranging from circular *tholos*-type temples that seem extracted directly from the Greek world (e.g., Temple of Hercules Victor in the Forum Boarium at Rome) to those that seem to show an architectural blending, such as the singular Temple of Portunus at Rome or the phenomenon of Hellenistic "theater-temples" in places like Gabii, Tibur, Praeneste, and Pietrabbondante (see Chapters 2 and 11). This latter group represents a key transition in Italic architecture when indigenous traditions can both be combined with and executed in an imported or borrowed fashion.

5. Conclusions

Having surveyed the wide range of evidence for peninsular Italian architecture of the first half of the first millennium BCE, it remains to comment on the nature of indigenous architectural traditions. It is clearly evident that a well-developed tradition of indigenous construction exists in Italy in the first half of the first millennium BCE and that it has distinct features. One prominent aspect of this tradition is a propensity for megalithic construction, as demonstrated by polygonal masonry circuit walls of the latter first millennium BCE. Another, also in terms of stone architecture, is the emergence of ashlar masonry during the archaic period. Cuboidal ashlar blocks of tuff become a hallmark of Italic architecture, with expert ashlar masonry appearing in the Etruscan cities and at Rome; in the latter, the massive podium of the Temple of Jupiter Optimus Maximus exemplifies the importance of this architectural tradition and its link to the archaic elite inasmuch as the community had to mobilize its resources to achieve monumentality. These ashlars are distinct, and their iconic value is only replaced with the advent of *opus caementicium* in the second century BCE. Yet we should note that, even after the arrival of concrete, Roman aesthetics still tended to prefer the appearance of a dressed ashlar wall face, thus informing the various veneers and surface finishes used to conceal a wall made from brick-faced concrete (see Chapter 9).

At the other end of the building techniques spectrum lies the tradition of simple domestic buildings fashioned from ephemeral materials. These huts and rustic houses are well represented in Italy's archaeological record and, while never completely supplanted, they differ from the tradition of Hellenistic farms that eventually dominate the rural landscapes of later first-millennium-BCE central Italy. The fugitive nature of their remains in the archaeological record notwithstanding, the corpus of huts and rural buildings represents an important part of the evidence for domestic structures of the earlier first millennium BCE.

The traditions of Italic construction become firmly embedded during the first millennium BCE. These include particular approaches to axial alignment

that derive from the practice of augury, as well as to the creation of strong frontal orientations in the case of sacred buildings. In these tendencies, the function of the building and space ultimately determine their form since the observation of ritual practice was of tantamount importance. Axial alignment and symmetry will also play a leading role in the emergent *domus* architecture of the later republican period, wherein the classic atrium design seems to prefer a balanced, symmetrical ground plan as discussed by Vitruvius.

The Roman conquest of the Mediterranean profoundly affected the nature of architecture in Italy, not to mention other art forms (Pollitt 1978; see Chapter 2). The wholesale importation of material culture proved profound and sweeping, and we see engagement with imported forms by multiple culture groups in Italy, including the Samnites who otherwise eschewed Greco-Roman urbanism for the most part. It must be noted, however, that while Hellenism altered the architectural landscape, in most cases the issue should not be framed in terms of a complete changeover from an indigenous tradition to an imported design – just as Hellenization did not lead to a complete changeover of identity. The persistence of indigenous traits including axiality, frontality, and symmetry in Italic architecture is notable in the face of profound cultural change, as Wallace-Hadrill has argued in the case of urban renewal in southern Latium and Samnium in the second century BCE (Wallace-Hadrill 2008b). These indigenous building trends in domestic, sacred, civic, and defensive architecture clearly carried meaning and thus were worthy of being maintained, even when better and easier techniques were available; conservative voices like that of the elder Cato even decried the adoption of the "new" at the expense of indigenous tradition (Livy 34.4.4). Architectural forms and identity are closely linked, and we may also see this linkage demonstrated by the phases of wall building in peninsular Italy – the first during the archaic period and the second during the middle republican period. Since these walls served both to defend and define cities and towns, their symbolic value, just as with that of the buildings they enclosed, should not be underestimated when considering architecture and its formal manifestation in the changing landscapes of ancient Italy.

GUIDE TO FURTHER READING

The architecture of pre-Roman Italy has not been the focus of a great deal of Anglophone scholarship in recent years, as the majority of scholarly writing on the subject has appeared in Italian, French, and German. The two-volume treatment of Roman architecture by Gros (1996a; 2001) principally treats forms from the Hellenistic period onwards. Useful treatments of Etruscan architecture, in particular, may be found in various multi-author volumes (e.g., Prayon 1975; Stopponi 1985;

Torelli 2001; Bentz and Reusser 2010). Specialist studies, such as Cifani's work on archaic architecture in Rome (2008), provide an in-depth treatment of the material pertaining to the early city and her monumentalization in the archaic period. Recent work on Italic religion and sanctuaries has also produced important scholarship on temple architecture (de Grummond and Simon 2006; de Grummond and Edlund-Berry 2011). The late archaic Etruscan site of Marzabotto has also been the subject of recent and noteworthy scholarship (Sassatelli 1989; Govi 2007; Bentz and Reusser 2008). Likewise, recent treatments of the archaeology of Etruria contribute new insights on urban centers and their architecture (Izzet 2007; Riva 2010). The newest edition of the urbanism handbook by Gros and Torelli also is useful for architectural studies (2010). For the archaic and republican city of Rome, the works of Coarelli (1983; 1985) and Ziòłkowski (1992), respectively, are quite important. Coarelli treats the development of the Forum Romanum from a chiefly topographical point of view, while Ziòłkowski focuses exclusively on middle republican temples in the city of Rome. The establishment of republican shrines and priesthoods also represents an important avenue of current scholarship (Clark 2007).

For building techniques one must still consult Lugli's two-volume work (1957), as it is a trove of information and wears its age better than does the work of Blake and Van Deman (1947). Essential also is Adam's *La construction romaine: Matériaux et techniques* (1984), which has been translated into several languages including English and Italian. Recent scholarly work on the treatise of the Latin author Vitruvius proves indispensable for the student of Roman architectural forms, their precursors, and outside influences. Most essential is the critical edition produced under the erudite editorial oversight of Gros (2006) and published in the Collection Budé series. Also extremely useful is an annotated and illustrated English translation produced a decade ago by Rowland and Howe (1999).

CHAPTER TWO

Rome and Her Neighbors: Greek Building Practices in Republican Rome

Penelope J.E. Davies

Introduction

> [Tarquinius Superbus's] first concern [having subdued Gabii] was to leave a temple of Jupiter on the Tarpeian Mount as a monument to his reign and his name: it should show that of the two Tarquinii, both kings, the father had vowed it and the son had completed it. (Livy 1.55.1)

Regardless of the historical trustworthiness of Livy's account of early Rome, archaeological evidence on the Capitoline Hill preserves the footprint of a vast temple from the end of the sixth century BCE, and few historians challenge the notion of an ill-defined king as the builder (Mura Sommella 2001; Hopkins 2010). Regal building is relatively straightforward: the monarch has the resources of the state at his disposal (money and manpower) and can reasonably anticipate the fullness of his reign to accomplish his goals. This ease of patronage is particularly clear in late Classical and Hellenistic Greek lands, where architecture and city planning evolved chiefly in the service of monarchies, particularly those of Pergamon, Syria, and Egypt (Winter 1993; 2006). Even at the simplest level, architecture both derives power from and exerts power through its physical presence, and kings deployed this power to promote and strengthen their claims to legitimacy (that is, the outcome of their

A Companion to Roman Architecture, First Edition. Edited by Roger B. Ulrich and Caroline K. Quenemoen.

negotiation with their subjects for the right to rule). Such visibility also has obvious advantages in an elective republic, and probably for precisely this reason in republican Rome, by constitution or consensus only elected officials could engage in public building, which they did on behalf of the state. Censors let most public building contracts; aediles too, though generally on a smaller scale; and victorious generals (consuls, praetors, and promagistrates) commissioned monuments to commemorate their successes. Unlike kings, their use of resources was usually subject to senatorial oversight, and their terms of office were limited to a year for all magistracies save the censorship, which was filled every five years for about 18 months.

On increasing contact with Greek lands over the third to second centuries BCE, the elegance, opulence, and programmatic quality of Greek architecture grew more and more attractive to Romans; to those who saw it first-hand so too, presumably, did the authority it imparted on the patron (see also Chapter 3). The challenge for republican politicians was how to introduce powerful Greek forms given the constraints of their office. The history of their success is not a simple history of the progressive adoption of one Greek form and another in the interests of cultural imperialism (which has been well rehearsed: e.g., Boëthius 1978: 136–215); it is a history of politicians learning to work within constitutional limitations to approximate and exploit those architectural forms and patterns of patronage (Davies forthcoming). This chapter traces that history, which ebbs and flows with the demands of the political arena, beginning with the bold republican initiatives of the late fourth century, and ending with the even bolder, un-republican maneuvers of the mid-first. Because political and patronage practices differed in other Italic cities (e.g., Wallace-Hadrill 2008b: 73–143), the following discussion is focused exclusively on public architecture in Rome.

1. The Rise of Individualism

Relatively little public building took place in fifth- and early-fourth-century Rome (in general, La Rocca 1990; Torelli 2006; 2007). After the opulent days of the regal period, the city seems to have retrenched; perhaps it was financially constrained, or perhaps material austerity was a considered choice in the interests of the *isonomia* implicit in the constitution (Smith 2006: 316; Flower 2010: 37). It was at the end of the fourth century that building intensified, and with it hit the first powerful wave of Hellenism. Political change was in the air. Rome was spreading its hegemony over Italy, and its leadership was stretched thin. From 326, this resulted in the practice of prorogation (extension of authority beyond a consulship or praetorship in the role of proconsul or propraetor) (Lintott 1999: 113), which concentrated power in a

small group of illustrious individuals. For them the model of Alexander the Great was fresh and inspiring, as it rebounded throughout the Mediterranean, mediated especially through Sicily and South Italy. Competition was ferocious. In the meantime, at home plebeians had gained access to the upper magistracies, beginning with the Licinian–Sextian Law of 367; the *Lex Ogulnia* of 300 removed the last major obstacle to their progress by allowing them into the pontifical colleges (Lintott 1999: 37). The ranks of candidates eligible for office swelled dramatically, and for ambitious plebeians, new men without a client base or patricians with a poor pedigree, architecture suggested itself as a useful means of advancement through visibility.

Within this climate, the responsibility for the first flush of Hellenism in Roman architecture falls largely at the feet of two ambitious men from undistinguished patrician families. The first was Appius Claudius, who, unable to win a consulship, in 312 secured the censorship instead. His tenure of the post was controversial, but he gained particular notoriety for letting two high-profile building contracts: the Via Appia, Rome's first major road, and the Aqua Appia, the city's first aqueduct. Contemporary politicians seem to have noted the censor's manipulation of his magisterial mandate in the interests of drawing voter support. Offering utilitarian benefactions that raised the standard of living in Rome and gave economic advantages to new territories in Campania, Appius Claudius emulated the euergetistic practices of Hellenistic dynasts (MacBain 1980; Humm 1996). Unlike a king, however, he used state funds (bypassing the Senate's customary approval). Moreover, Diodorus Siculus (20.36.2) remarked that the Via Appia would be an "immortal" monument to the censor because instead of naming it for function, location, or destination, he named it – and the aqueduct – for himself. The choice of his *praenomen*, Appius, imitated the practices of Philip of Macedon and Alexander, who gave their first names to the cities they founded. Appius Claudius's contribution to the Hellenization of Roman architecture was the unscrupulousness with which he implemented the model of Hellenistic royal euergetism in the context of Roman politics, demonstrating how to manipulate implicit controls on patronage.

With regard to architectural design, a dramatic Hellenization of Roman practice makes its initial appearance at the opening of the third century BCE. Early republican temples seem to have had a relatively consistent design, usually termed "Italic" (Figure 2.1, top left). Frontal stairs gave access to a high podium, framed and reinforced with *opus quadratum* of tuff and filled with rubble. A columned porch led into a triple or single cella, the latter occasionally flanked by *alae*. Solid lateral and rear walls were usually of tuff, inner walls of tuff, sun-dried brick, or *opus craticium*; the architrave and roof armature were wooden. The wide eaves of a gabled roof protected the walls and terracotta revetments sheathed the timbers (Grønne 1992; Nielsen 1993a). The

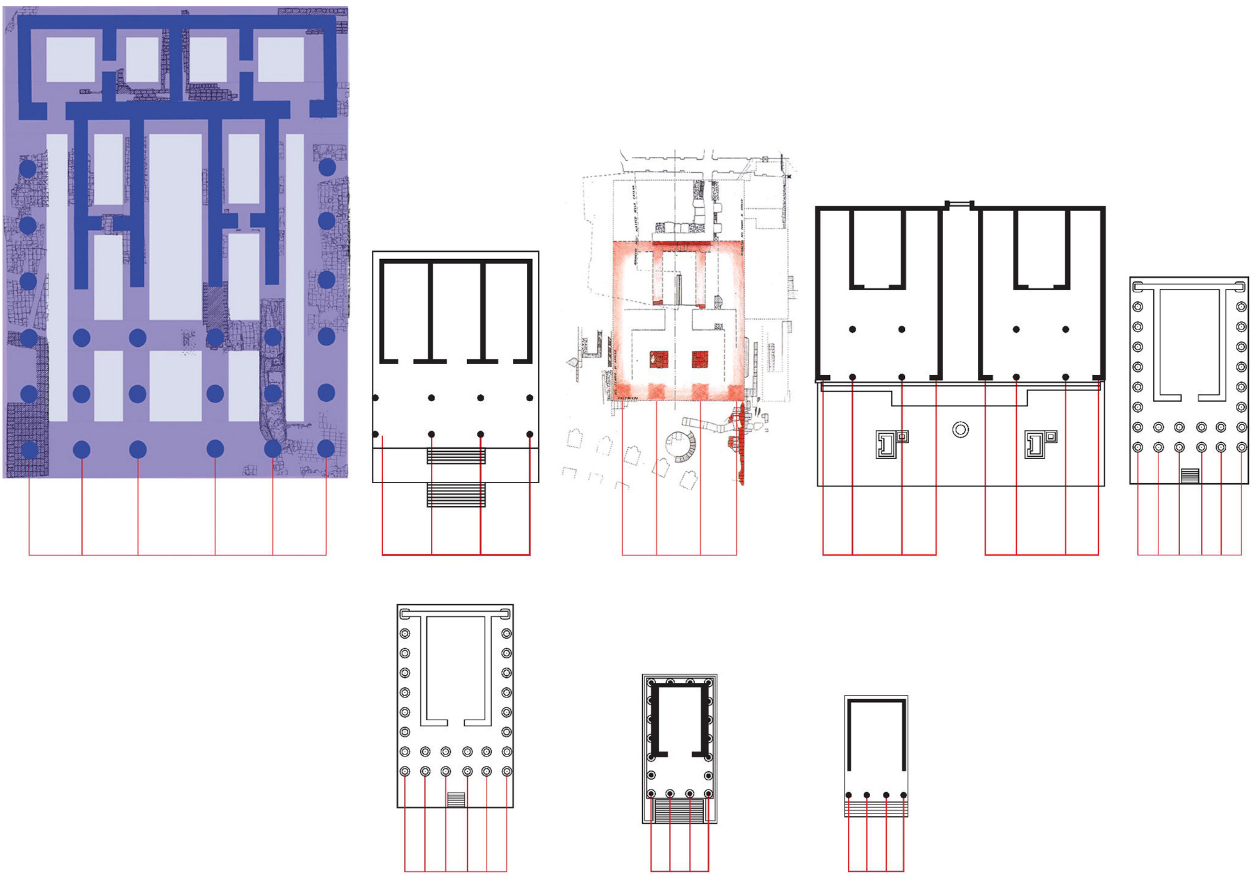


Figure 2.1 Scale comparison of temple plans, with interaxials. Top row, from left: Temple of Jupiter Optimus Maximus, ca. 509 BCE: approximately 9.5–12 m; Temple of Castor, ca. 484 BCE: 8 m; Temple of Apollo Medicus, ca. 435 BCE: 6.5 m; Temples of Fortuna and Mater Matuta, early fourth century BCE: 7.5 m; Temple of Victoria, ca. 294 BCE: 3.2 m. Bottom row, from left: Temple of Victoria, 294 BCE: 3.2 m; Temple of Portunus, late fourth/early third century BCE: 3.6 m; Temple A, Area Sacra di Largo Argentina (Temple of Juturna?), ca. 241 BCE: 3.2 m. *Source*: Penelope J. Davies and Matthew Catterall.

tensile strength of the wooden architrave allowed for wide intercolumniations. Citing the Hellenistic architect Hermogenes, Vitruvius (*De Arch.* 3.3.4–5) later described these temples as *aeraeostyle* or *diastyle*, resulting in a "top heavy, low, and wide" appearance.

This would change with the Temple of Victoria built by L. Postumius Megellus. The first of his *gens* to hold office since the humiliating defeat of Sp. Postumius Albinus at the Battle of the Caudine Forks in 321, he raised fines as curule aedile in ca. 306 and used them to finance a temple, which he dedicated in his second consulship in 294 (Livy 10.33). The very choice of Victoria – the basis of a Greek "theology of victory" that had been paramount to Alexander's success – bespeaks his engagement in the competitive fray through Hellenistic means (Gagé 1933; Fears 1981; Bastien 2007: 154).

Scholars identify Postumius Megellus's temple with a podium on the southwest corner of the Palatine (Castagnoli 1964; Wiseman 1981; Pensabene 1988b; contra Cecamore 2002: 122–126), where archaeological evidence suggests a radical shift in temple aesthetics. It presents the first hexastyle facade (and the first *peripteros sine postico* plan) in Rome since the Temple of Jupiter Optimus Maximus; it also had much narrower intercolumniations than any temple to date (Figure 2.1), somewhere between two and a half (a very conservative estimate) and two times its lower column diameters. By Hermogenes' definition (Vitr. *De Arch.* 3.3.1, 3.3.5, 3.3.6) it was either *eustyle* or *systyle*. The likely explanation for this sudden swing from broad, squat proportions toward a slender, vertically accented appearance is that the closely spaced hexastyle facade supported a stone entablature, probably made of *peperino*; once stuccoed, it would resemble Greek marble. The style used may have been Ionic (see Chapter 11). The new aesthetic was a direct imitation of Hellenic architecture in South Italy, Sicily, and Greek lands beyond, combined with the Italic penchant for a high podium and a frontal emphasis. This initial revolution in Roman temple design introduced greater durability and a new level of monumentality and implied power, and transported the elegance and refinement of the Greek world to Rome. The greater cost of construction testified to the status and achievements of the patron (Davies 2012). Siting may even have had a Greek edge: the temple stood on a platform with the newly monumentalized mythical hut of Romulus, possibly evoking the Athenian acropolis where the Parthenon honored Athena as a victory goddess and the Erechtheion commemorated the city's foundation myth (Pensabene and D'Alessio 2006: 33).

Both Appius Claudius and Postumius Megellus adapted Greek traditions to Roman institutions to increase their visibility on the political stage, and the boldness of their strategies brought them into conflict with other politicians. Yet even though the elite monitored the censorship more closely, and though traditionalists would continue to favor the conservative "Italic" plan for some

time, once instituted, their Greek-inspired innovations irrevocably changed the norms. In the course of the third century, Hellenism may even have seeped into some of Rome's civic buildings as Rome embarked on diplomatic dealings with Hellenistic kingdoms during the war with Pyrrhus, though the current sparseness of the archaeological record combined with the lacuna in Livy's text leave many questions unanswered. The Comitium may have been reconceived on a circular plan, on the model of Greek *ekklesiasteria* familiar from contact with South Italy, or not (La Rocca 1990: 326; contra Carafa 1998; see also Chapter 1), and Livy (26.27.1–4, 27.11.16) mentions an Atrium Regium on the northeastern flank of the forum, which may have been a hybrid of an atrium house and a type of royal hall Greek dynasts built primarily for entertaining embassies (Welch 2003: 13–9).

2. Engaging in a Hellenistic *Koine*: The Effects of Greek Conquest

The spectacular influx of spoils after M. Claudius Marcellus's conquest of Syracuse in 211 engaged the Roman public directly with original Greek art. Still, the economic depression brought on by the Second Punic War stalled building enterprises well into the early second century. Livy (40.5.7) reports that even in 182 a group of Macedonians visiting Rome "mocked … the appearance of the city, the public and private spaces of which were not yet embellished."

The first initiatives for its improvement took the form of modest urban re-conception: the aediles of 193, M. Aemilius Lepidus and L. Aemilius Paullus, built a pair of porticoes (Livy 35.10.11–12). Probably colonnaded enclosures made of wood flanking public spaces or streets, they drew on the Greek practice of using stoas to emphasize and articulate public areas. Though well established by the fifth century (in the agora of Athens, for instance), the practice had taken off in force in late classical and Hellenistic cities (Coulton 1976; Winter 2006: 50–70). The porticoes in Rome initiated a novel process of defining and organizing the jumbled spaces of the city that were the natural outcome of gradual growth and the absence of a single plan or patron. Innovation retained its political agenda: one portico eased passage through the commercial district by the Porta Trigemina, replete with voters, the other between the forum and the voting zone of the Campus Martius. M. Tuccius and P. Junius Brutus built another outside the Porta Trigemina in the wood-dealers' quarter during their aedileship in 192 (Livy 35.41.10).

New construction began in earnest as generals returned to Rome impressed by the urban forms they had seen during their conquests of the Greek

mainland. Those who led the armies that replenished the treasury were entitled to command the use of large sums of (state-owned) income from plunder (Bradford Churchill 1999), and legal debates about the disposal of spoils suggested that it was in their best interests to deploy them in the public interest. Most chose to build temples, as M. Fulvius Nobilior did after triumphing over Ambracia in northern Greece in 187 (Eumenius, *Panegyric* 9.7.3). Yet in contrast to the rectilinear norm, his Temple of Hercules Musarum on the Circus Flaminius, shown on fragments 31eeff of the Severan Marble Plan, combined a tetrastyle pronaos with a cylindrical cella (Gianfrotta 1985; Viscogliosi 1996a; Coarelli 1997: 452–484). The design evoked the round *tholoi* of the Greek world that commemorated heroized monarchs, such as the Philippeion at Olympia, built soon after Philip II's conquest of the Greeks at Chaironeia in 338 (Miller 1973). For Hercules, the Greek hero long celebrated in Rome for overcoming the monster Cacus, the design was apt. There was a self-serving quality to the choice: the form aligned Fulvius Nobilior with heroes of the legendary and historic past. Yet by introducing Greek forms he may also have hoped, like Marcellus before him, to encourage Romans to temper their military *virtus* with a Greek aesthetic sensibility that would act as a civilizing force (Gros 1979; Gruen 1992: 109–110).

His censorship with Aemilius Lepidus in 179 saw further adaptations of Greek forms to Roman purpose. As well as building more porticoes, he let a contract for a basilica on the north side of the forum, named after himself, "Fulvia" (Livy 40.51.3–9). The building was probably used as a covered shelter for forum business (David 1983), and archaeologists reconstruct it as a long colonnaded portico placed transverse to the forum with a row of shops and a columned hall behind. Ti. Sempronius and C. Claudius Pulcher, the censors of 169, contracted for another basilica on the opposite side of the forum, known as the Basilica Sempronia (Livy 44.16.9–11); meager traces are consistent with a form mirroring the Basilica Fulvia (Carettoni and Fabbrini 1961; Iacopi 1993). These were not Rome's first basilicas, yet earlier versions seem to have been variations on the design of the Atrium Regium (Welch 2003). The basilicas of Fulvius Nobilior and Sempronius mark a new departure in design. Wide intercolumniations suggest that their entablatures were wooden, which saved time and expense; but their elongated form with the portico on one side evoked the grand stoas of Hellenistic cities built as acts of royal benefaction, such as the competing South Stoa (perhaps the gift of Pergamene kings, ca. 250) and Stoa of Philip V of Macedonia of ca. 200 in the agora on Delos (Winter 2006: 46). Though erected 10 years apart, taken together the Roman basilicas transformed the older Italic configuration of the forum, framed by atrium houses, into the kind of grand public square articulated by majestic colonnades that was rapidly becoming a Mediterranean *koine*. Implicitly the aesthetic evoked monarchy, but nothing indicates that

Romans objected to it for this reason; as with Greek sculpture, in fact, they seem to have embraced it (Gruen 1992).

Immediately after the redesign of the forum, a series of lavish porticoes succeeded the earlier wooden versions as manubial showcases, probably built entirely of stone. According to Velleius Paterculus (2.1.1–2), the earliest of them, the Porticus of Octavius on the Circus Flaminius, was also the most resplendent. Head of Aemilius Paullus's fleet in 168–167, Cn. Octavius had earned a triumph for his role in the successful outcome of the Third Macedonian War. A new man, his advance to the consulship depended on aggressive exploitation of his success as a praetor. The considerable spoils taken under his command went to embellish Aemilius Paullus's magnificent triumph (Livy 45.42.2), but the latter must have allowed him use of them for the construction of the Porticus of Octavius. No trace of it is known except, perhaps, a fraction of a line on fragment 31hh of the Marble Plan (Coarelli 1997: 515–528; contra Olinder 1974). It was probably three- or four-sided, and Pliny (*HN* 34.13) describes it as a *duplex portico*, a type of building known at Priene that Vitruvius (*De Arch.* 5.9.2, 5.11.1–2) defines as having two naves divided by a high colonnade. Within the building, likely on the interior colonnade, Octavius displayed bronze Corinthian capitals (Festus 188L; Pliny *HN* 34.13), probably brought as spoils from Greece; they may have been the first Corinthian capitals in Rome (Gros 1976b: 391–392; Viscogliosi 1999).

The Porticus of Octavius was the grandest display yet of manubial income expended in the public interest. More than that, it evoked the colonnaded courtyards that were a characteristic feature of Macedonian palace architecture (Nielsen 1999: 81–101), as well as the sacred *temenoi* that were gaining favor in the Hellenistic regions over which Rome was exerting its sway. Examples existed at such sites as the sanctuaries of Zeus at Dodona, Priene, and Megalopolis (Gros 1996a: 97–99; Winter 2006: 17), and more were in the planning at Pergamon and elsewhere; hypostyle sanctuaries had long existed in Egypt, where the Ptolemies perpetuated the concept in sanctuaries such as the temple complex of Serapis at Alexandria, built under Ptolemy II Euergetes (246–221) (Winter 2006; McKenzie 2007: 53–58). Colonnaded courts were also typical of gymnasia, where Greeks enjoyed cultured relaxation (Sauron 1987; Nielsen 1990: 36; Wallace-Hadrill 2008b: 175). Once established, this new type of *porticus* gained currency, subordinating the divergent axes of earlier buildings to consistent, rectilinear order. Their long rows of white, stuccoed columns evoked the opulent, increasingly planned spaces of Hellenistic cities, and as Vitruvius later comments, their open courtyards soothed the eyes and the body (5.9.5, 5.9.9). As in Greece, these icons of royal building served as an aggressive means of self-promotion, taking the name of the patron and commemorating his triumph; but in the hands of Roman generals their ideological charge shifted: they became symbols and

containers of spoils, memorials to imperial expansion, and, most importantly, property of the state. Rome's transformation into a cosmopolitan city was well underway.

It was when architects combined Hellenistic forms with the introduction of concrete construction that Roman patrons could begin to aspire to the true power potential of regal architecture (see Chapter 3). At some point, probably during the middle decades of the second century, a new ship-shed was constructed. From about the mid-third century, Rome had kept a fleet on call, so there must have been *navalia* dispersed along the urban shore. There is no clear record of their appearance (Cozza and Tucci 2006: 194; Tucci 2012), but it is likely that they shared some functionally determined features with ship-sheds (*neosoikoi*) known from sites such as the Piraeus, Oiniadai in Acarnania, and Carthage (Figure. 2.2) (Sears 1904; Blackman 1968; Hurst 1979: 23–32; Garland 1987: 154–156). These include rows of columns or pilasters defining long narrow rooms disposed in series perpendicular to a rear wall.

Remains of the new *navalia* run parallel to the riverbank in the shadow of the Aventine and correspond with a long rectangular building shown on fragments 23 and 24a-c of the Marble Plan (Gatti 1934; Von Gerkan 1958: 189–190; Cozza and Tucci 2006: 176–178). On the interior, a forest of pilasters supported 200 barrel vaults disposed perpendicular to the long sides, covering a series of rooms that sloped towards the Tiber. In its entirety the structure measured a vast 487 × 60 m and covered about 30,000 m^2; in size it was unparalleled in Rome. Innovation lay not so much in form but in material: pilasters, arches, and vaults were not constructed of wood or stone but of concrete (see Chapter 9). Greek and Italic practice were fused: the architect translated post-and-lintel construction into a concrete arcuated design to achieve the most adventurous structure of its time in Rome.

If earlier patterns of contract-letting hold true, this project bears the hallmark of censorial building. Entering the realm of conjecture, it may make sense to see it as the work of Aemilius Paullus during his censorship in 164 or his natural son P. Cornelius Scipio Aemilianus, censor in 142. The Aemilius clan had an intimate connection with naval affairs, and on his return after defeating Perseus in 167, Aemilius Paullus famously rode the royal galley up the Tiber into Rome; his admirals followed with the Roman fleet (Livy 45. 35.3–4), which could now be ceremoniously put to rest, as it could also after the razing of Carthage. A tantalizing fragment of Cicero (*De Or.* 1.14.62) suggests that the Navalia could have been the work of the East Greek architect Hermodorus from the Cypriote city of Salamis.

If correctly dated, the Navalia constitute the first known use of concrete for a large-scale superstructure in Rome. What it lacked in beauty it more than made up for in the advantages it offered for a utilitarian building requiring

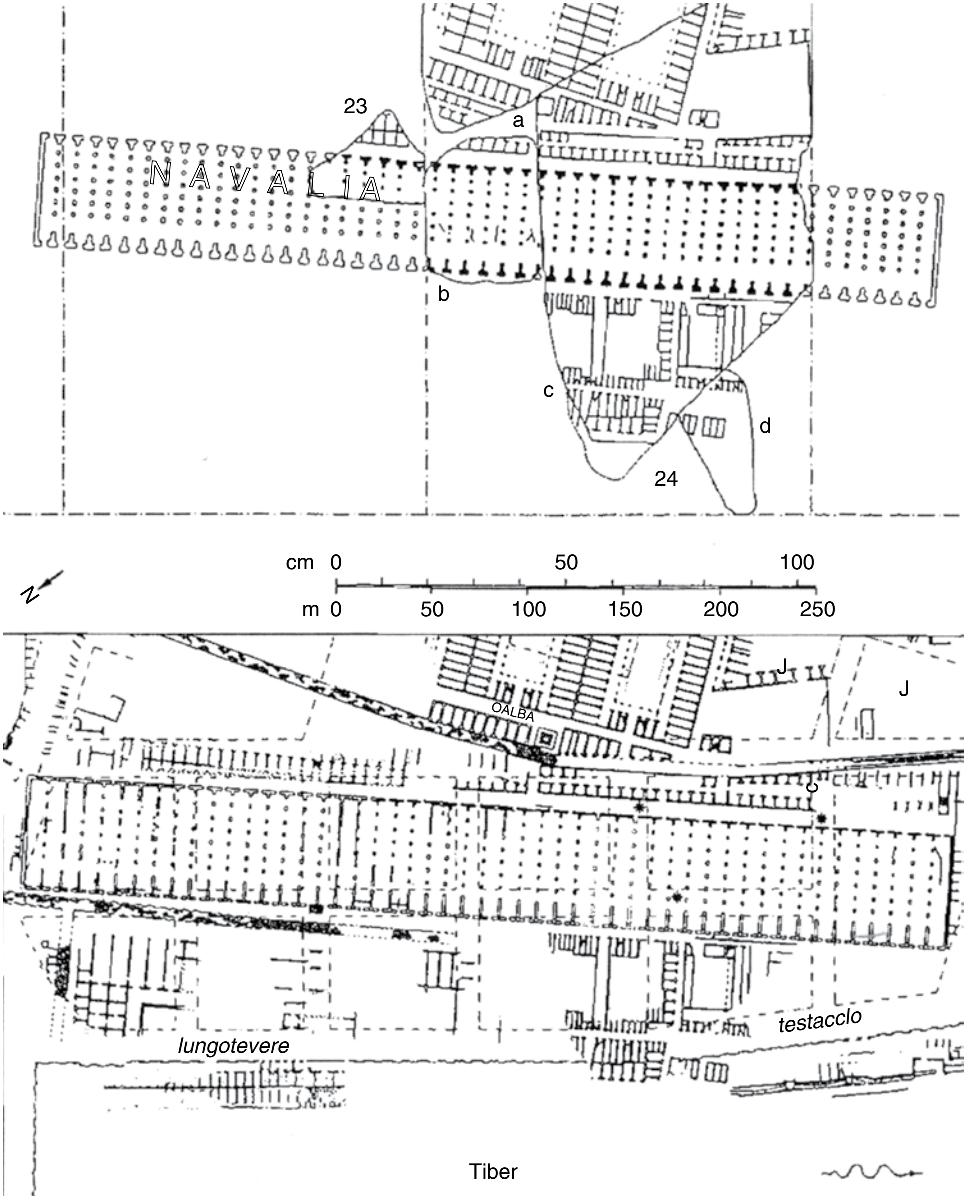


Figure 2.2 Plan of the Navalia, Rome. *Source*: adapted from Cozza and Tucci 2006: fig. 1. Used by permission of Pier Luigi Tucci.

large open spans: it overcame the fire hazard of a wooden building filled with wooden ships, and it afforded an impressive new level of monumentality – both real and symbolic – for Rome's extra-urban defenses. Generally, scholars attribute the innovations inherent in this structure and later concrete buildings to the freedoms concrete afforded architects, and to be sure the material's

malleability must have liberated them to dream. Yet more importantly, quick and economical, in one radical sweep concrete removed the primary determinants – time and money – that had restrained magistrates' construction ambitions throughout the Republic. On recognizing its architectonic strengths, magistrates were free to conceive not just moderately sized buildings but monumental, self-aggrandizing urban interventions. If properly attributed, in sheer scale and monumentality this structure was a first step in an apparently inexorable march to building in the fashion of kings, from whom the Aemilii claimed descent (Wiseman 1993).

3. 146 BCE and After: The Age of Hermodorus

The year 146 raised the ante on both self-promotion and the use of Greek architectural forms in Rome. Two men shared the focus of public attention: Scipio Aemilianus, adoptive son of the lackluster P. Cornelius Scipio, for the definitive razing of Carthage and the plebeian L. Mummius for the destruction of Corinth (for which he triumphed in 145). In the same year, a third man, the plebeian Q. Caecilius Metellus, celebrated a triumph for the conquest of Macedonia in 148 and struggled to position himself as the rightful conqueror of Achaea. Scipio Aemilianus and Mummius vied for the censorship of 142, while also probably encouraging efforts to keep Caecilius Metellus from the consulship (which were successful until 143). Even at the distance of over two millennia, the rivalry between these men is palpable.

Caecilius Metellus had most to prove, and after his triumph he commissioned a temple to Jupiter Stator (see Chapter 11). Velleius Paterculus (1.11.5) states that it was the first temple in Rome built of marble, the material sign of Greek conquest (Gros 1976b: 393). Ever since the capture of Syracuse, this luminous Greek stone had exerted its pull. In 173 Q. Fulvius Flaccus had hoped to roof his Temple of Fortuna Equestris with marble tiles stripped from the Temple of Juno Lacinia in Croton, "in his extreme eagerness that there should be no larger or more magnificent temple in Rome" (Livy 42.3), but, outraged at the sacrilege, the Senate insisted on their return. The cost to import enough Pentelic marble for an entire temple must have been exorbitant.

Moreover, to design the temple Caecilius Metellus turned to Hermodorus, who probably collaborated with a team of East Greek *marmorarii* (Gros 1973; 1976b; Viscogliosi 1996c). Hermodorus was steeped in the Hellenistic traditions of the Greek East, where he had probably been an authoritative practitioner of the refined Ionic style as perhaps initially defined by Pytheos, architect of the Temple of Athena at Priene and author of a treatise condemning the Doric style. For him perfection resided in unmitigated use of proportional relationships between the component elements of a building.

Subsequent architects honed the style, including Hermogenes, a contemporary of Hermodorus who introduced additional Attic features into his work and whom Vitruvius credits with developing the pseudodipteral plan; since it was already in use in archaic Sicily, his invention may have been to adapt it to an Ionic design or to codify it in a treatise (Vitr. *De Arch.* 3.3.8; Gros 1976b: 395–397; Pollitt 1986: 242–247; Winter 2006: 7).

As described by Vitruvius (*De Arch.* 3.2.5), Hermodorus's Temple of Jupiter Stator – peripteral and hexastyle with 11 lateral columns – was a canonical example of Hellenistic Ionic architecture (Castagnoli 1955; Gros 1973: 139–143). This set it well apart from the mainstream. As if to emphasize the novelty, he pointedly restored the neighboring Temple of Juno Regina, built in the Italic fashion by Aemilius Lepidus in 179, and enclosed the two temples with a portico where he displayed an extraordinary cache of spoils. Traces of the portico's tuff foundation indicate four wings, probably built with stuccoed walls and columns of tuff. The lateral wings had double aisles, and the southwest wing presented colonnades on the interior and the exterior (Morgan 1971; Lauter 1980–1981: 37–46; Viscogliosi 1999).

Scipio Aemilianus and Mummius also borrowed heavily from the Greek architectural vocabulary for manubial temples dedicated in their censorship. The former's circular temple to Hercules Invictus in the Forum Boarium was a play on Fulvius Nobilior's Temple of Hercules Musarum (Ziòłkowski 1988: 312–313; Palmer 1990; Coarelli 1996a), and Mummius responded in kind with a Temple of Hercules Victor. If it can be identified with the round temple by the Tiber in the Forum Boarium, as seems likely, it was one of the most radically Greek buildings in the city at the time (Ziòłkowski 1988, with bibliography; contra Coarelli 1988a: 92–103, 180–204; see Chapter 11). On a Greek *crepidoma*, the circular plan merged with what may be the first appearance of the Corinthian style on the exterior of a building in Rome. Twenty slender columns were closely arranged in a *pycnostyle* design. Coffers with decorative moldings and rosettes ornamented the ceiling of the peristyle in the Greek manner. The columns and the revetment were crafted of shimmering Pentelic marble, the revetment scored for the rusticated effect of venerable age. Windows flanking the doorway infused the cella with light, to contrast with the inner gloom of earlier cult buildings. The attenuated proportions and a systemic play of numerical ratios in the plan and elevation suggest the touch of Hermodorus, or at least his school, working with local craftsmen for all but the capitals (Gros 1973: 158–9; Ziòłkowski 1988). The temple went beyond evoking Greek heroism through circular form; the marble, and particularly its Corinthian capitals, described the source of Mummius's fame.

These temples were the hallmark of a lavish triumph, and they were ruinously expensive. With Greece subdued, Rome turned its armies on lands with

lesser spoils, and its resources were stretched to deal with Jugurtha, the Cimbrians and Teutones, and finally the social and civil wars. Patrons returned to commissioning hybrid temples that combined Italic fabrics, podia, and frontality with Hellenistic proportions and accents. The trend may also have been part of the fallout after the Gracchan troubles, as indignant *optimates* and *populares* vied to tie themselves to Italic values and the *mos maiorum* (Gros 1976b: 398–403). Dense white travertine from Tibur made its debut for superstructures around 120, serving as a cheaper, Italic alternative to imported luxury stone (see Chapter 9; Lugli 1946: 111–113; 1957: 321; Jackson and Marra 2006); and when G. Marius selected an architect for his Temple of Honos and Virtus of ca. 102, he looked not to Greek masters but to the Italian G. Mucius, whose design combined Roman idiom (*peripteros sine postico*) and material with Greek proportions ("symmetries of the cella, the columns, and the epistyles according to the proper rules of art") (Vitr. *De Arch.* 3.2.5; 7.praef.17; Richardson 1978; Coarelli 1983: 101–103; Palombi 1996; see Chapter 7).

For its part, Q. Lutatius Catulus's temple to Fortuna Huiusce Diei of ca. 102 (Temple B in the Area Sacra of Largo Argentina), though Corinthian and circular like the temple by the Tiber, nevertheless stood not on a low *crepis* but on a high Italic podium with an axial frontal staircase (see Chapter 7). Its walls and columns were stuccoed Aniene tuff, its paving travertine; Pentelic marble was reserved for the frieze (Boyancé 1940; Coarelli 1981; Gros 1995). This was still the norm in ca. 80–70, when the pseudoperipteral Temple of Portunus in the Forum Boarium was restored with near-canonical proportions for a Hellenistic Ionic temple, but sitting on a high podium and built of Aniene tuff and travertine with a simple veil of stucco (Ruggiero 1991–1992: 266; Adam 1994b; Buzzetti 1999; Stamper 2005: 65–66; Vitr. *De Arch.* 3; see Chapter 7). For some temples genuinely Greek accents were applied: Sulla brought capitals from the Temple of Zeus Olympios in Athens and used them in temples on the Capitoline (Pliny *HN* 36.45; Tölle-Kastenbein 1994: 145, 152), and the cargo of the Mahdia shipwreck of about the same date includes architectural decoration, old and new, indicating a lively trade in Greek ornament for Roman buildings (Hellenkemper Salies, von Prittwitz und Gaffron, and Bauchhenss 1994; Ridgway 1995).

4. The Slow Triumph of Monarchism

By the last decade of the second century, the Caecilii Metelli, descendents of the conqueror of Macedonia, had emerged as the dominant family of the *optimates* (van Ooteghem 1967). In the aftermath of the Gracchan troubles, and

later as they lost face over Q. Caecilius Metellus Numidicus's handling of the Jugurthine War, they were eager to secure respect and support from the non-elite voting masses. Of several temple restorations attributed to the family, the most innovative was an ambitious re-conception of the entire southwest corner of the Palatine after a devastating fire in 111, which transformed the area from a series of disparate temples into a unified complex of cultic spaces raised aloft on massive substructures. The Temple of Magna Mater (first completed in 194) was rebuilt from the concrete foundations up as a Corinthian prostyle hexastyle temple, possibly pseudodipteral, with Greek proportions. Its high podium sat on a vast new *platea* that extended out on both sides. To the west were cultic structures, such as the basin where the cult statue was purified; to the east, the Temple of Victoria was restored, as was the building on top of the small foundations between the temples (possibly the Temple of Victoria Virgo). The hut of Romulus was probably elevated to the new ground level. Thus the sanctuary brought the city's Italic (Victoria, the supreme exaltation of militarism and Roman imperialism, and Romulus) and Greek (Cybele, protectress of Aeneas) foundation myths into harmony under *optimate* control, and through the sanctuary's redesign the Metelli laid claim to – and took control of – a complex of cults that had grown increasingly associated with the masses (Morgan 1973: 235–236; Pensabene and D'Alessio 2006: 40–47).

To the south, a massive concrete substructure supported the *platea* out over the slope of the hill, providing a permanent setting for the *Ludi Megalenses.* Where it ran in front of the Temple of Magna Mater, the ancient Clivus Victoriae was transformed into a vaulted and basalted *via tecta* within the substructure. On the north side was a row of vaulted rooms, while a parallel vaulted *ambulacrum* ran to the south. On the valley side of this walkway was a striking arcade. To the west a staircase may have descended to the Velabrum; to the east the Clivus Victoriae veered north to ascend to the Temple of Victoria while a southern branch fed into the Scalae Caci to the Forum Boarium (Pensabene and D'Alessio 2006: 42).

This was not the first barrel-vaulted concrete temple substructure in Rome or even on the Palatine (see Anselmino 2006), but it was the first sanctuary complex on this scale, and the first to transform a substructure into a scenographic reconfiguration of the landscape. Through the substructure and terraces, the architects distinguished hierarchies of spaces (for gods, for men, and for those who administered rituals of mediation), controlled a visitor's movement, and framed views across the Forum Boarium and the Circus Maximus. Seen from these zones, in turn, the sanctuary stood proud on its constructed Palatine promontory. With the contemporaneous Sanctuary of Fortuna Primigenia at Praeneste, the complex presented a radically innovative

vision for sanctuary planning in Latium, which transformed the landscape to make the whole far greater than the sum of its parts (see Chapter 12). This vision drew on the kinetically conceived sanctuaries of the Hellenistic world – such as those of Asclepios at Kos and Athena Lindaia at Lindos on Rhodes – and on Hellenistic urban planning as evidenced at Pergamon (Gullini 1973; Coarelli 1987; Pensabene and D'Alessio 2006: 42–47; Winter 2006). These venues had a theatrical quality: they impressed from afar, and from within changes of elevation, forms, and volumetric spaces framed vistas, controlled movement, and confronted visitors with sudden visual revelations. Landscape was masterfully stage-crafted (Pollitt 1986: 230–242; Winter 2006: 207–218). In the grand complex on the Palatine – and the post-Sullan "Tabularium" on the Capitoline (Tucci 2005 for bibliography) – Greek urban and sanctuary design merged with Italic concrete technology to enhance architecture's theatricality and potential for viewer manipulation.

It was with Rome's first stone theater – Pompey's Theater complex – that the kinetics of Roman architecture borrowed from Hellenistic practice to such an extent as to sound a death-knell for republican building. In 154, the censors C. Cassius Longinus and M. Valerius Messalla had let a contract for a stone theater on the southwest slope of the Palatine for *Ludi Scaenici*. Magistrates commissioned scenic games for state celebrations and housed them in temporary wooden structures with seating for the elite. The permanent theater the censors proposed would have brought Rome into line with other Italian cities such as Pompeii and Teanum Sidicinum (Sear 2006: 48–52). It was close to completion when P. Cornelius Scipio Nasica incited a senatorial decree for its dismantling and the sale of its components at auction, citing a danger to public morals and national character (*Periocha Liviana* 48; Sordi 1988). He may have objected to the implicit relaxation of senatorial authority over the arts (Gruen 1992: 183–222), but it is also likely that the governing elite hoped to prevent the adoption of seated assemblies in the Greek style, where Roman social hierarchies might be dissolved and the masses might assemble without a magistrate's instruction (Forsythe 1994; Wallace-Hadrill 2008b: 160–169); moreover, it was in theaters, particularly, that Hellenistic monarchs such as Demetrius Poliorcetes and Mithridates VI Nikator conflated drama and reality to perform their kingship before their seated subjects (e.g., Plut. *Demetr.* 34.3, *Sulla* 11; von Hesberg 1999), and for their own theaters they fine-tuned the design of classical examples to dramatize its performance (Soyoz 2010). In the construction of a stone theater, in other words, the Senate recognized the threat of power from below (the masses) and from above (autocracy) – the threat, that is, to its very existence in the running of state. That threat was realized in Pompey's Theater (see also Chapters 3 and 15).

Pompey's rise in politics was as unconstitutional as it was meteoric. In 77, the Senate granted him special propraetorian authority against M. Aemilius Lepidus, though he had yet to hold office; when required to disband his army, he sought proconsular *imperium* against Q. Sertorius in Spain – before he had even become a senator. The Gabinian law of 67 was the *coup de grâce*, granting him special authority throughout the Mediterranean and vast resources to put an end to piracy, which opened the door to the coveted command against Mithridates in 66. The Theater was the material counterpart to this career. It celebrated his third triumph, in 61, over a "crowd of nations" too large for ancient authors to agree on (App. *Mith.* 116–117; Pliny *HN* 7.98; Plut. *Pomp.* 45.2; Diod. 40.4). Spoils financed its construction, which probably began soon after the triumph. A massive semicircular *cavea* rose on a series of annular barrel vaults at one end of the complex, crowned by a colonnaded *ambulacrum* with shrines to Honos, Virtus, and Felicitas as well as a Temple of Venus Victrix on axis with the stage (Packer, Burge, and Gagliardo 2007). To either side of the stage building were colonnaded basilicas. Marble and statuary ornamented the building's surfaces (Coarelli 1971–1972; Kuttner 1999). Behind the stage, porticoes defined a spacious courtyard planted with trees (Gleason 1994); on axis with the Temple of Venus Victrix was a senate house. The inspiration was Greek: purportedly Pompey commissioned sketches and plans of the theater at Mytilene so that he could build a larger and more magnificent version in Rome (Plut. *Pomp.* 42.4). Scholars are at pains to find a close affinity between the buildings, which suggests that the debt was more conceptual than literal. According to Vitruvius, the ideal geometrical basis of a Greek theater was three squares inscribed in a circle (resulting in a *cavea* that enclosed the orchestra in more than a half-circle) as against four triangles inscribed in a circle for a Roman theater (Vitr. *De Arch.* 5.6–7; Wallace-Hadrill 2008b: 153–160). Thanks to concrete, moreover, Pompey's vast theater did not rest on a hillside, as Greek theaters did, but loomed free-standing on the open Campus Martius.

The project was unprecedented in Rome for its sheer reach. Pompey's conduct outside the constitution, coupled with his massive spoils and the use of concrete, allowed him to think on a scale far outstripping any true republican. In footprint, the complex was vast; in vertical mass, it rivaled the very hills of Rome. Revolutionary too was the multitude of functions assembled there and the extent to which they were tied to him: theatrical performances, religious ceremonies, trade, art-viewing, business, leisure, and meetings of the Senate all took place there, with his house close by. The complex was Rome in microcosm, attached to his name, imbued with his presence. It was here before his assembled audience at its dedication in 55 that, as consul for the second time, the self-styled Alexander the Great (Greenhalgh 1981), the self-styled

Agamemnon (Champlin 2003), restaged his extraordinary triumph through the performance of Agamemnon's triumphal return to Argos in Accius's *Clytemnestra* (Cic. *Fam.* 7.1.2; Erasmo 2007). Through his Theater, Pompey became king.

Pompey's Theater signaled a turning point in the Roman use of Hellenistic architectural practices for personal propagandistic purposes. It would inspire Julius Caesar to build the first imperial forum (see Chapter 3; Liverani 2008), where he held court seated on the lofty podium of a temple to his patron goddess and legendary ancestress, Venus Genetrix, refusing, king-like, to rise to greet senators (Suet. *Iul.* 78.1; Ulrich 1993); there he, in turn, controlled the rituals of the city. The theater led to Caesar's named interventions in all regions of the city, inverting Pompey's strategy and making the whole city his stage.

In the maturation of Hellenistic patterns of patronage introduced by Appius Claudius and Greek forms first seen in the temple of Postumius Megellus and in their meeting with concrete and blind unconstitutional ambition, republican constraints on architectural propaganda were overwhelmed. Just as Pompey's and Caesar's extended authority afforded them grander plans than earlier republicans, so these very works helped legitimize their extended authority – and the concept of a lone helmsman, a *pater patriae*, a king; in this much, they helped to bring down the Republic.

GUIDE TO FURTHER READING

An essential starting point for any research on the architecture of the city of Rome is the *Lexicon Topographicum Urbis Romae* (*LTUR* 1993–2000). In six volumes, the work contains entries by a wide range of international scholars on all the named monuments of Rome, with archaeological and literary data and bibliographies. There is no single recent text on the architecture of Republican Rome. Boëthius (1978) provides an excellent formal account of early Roman buildings, but it is now severely outdated; other introductory texts on architecture throughout the Roman period share his interest in form and typology when dealing with the Republic. Gros (1996a) covers the development of diverse buildings types in the mid- to late Republic. La Rocca's book-length essay (1990) is an indispensable resource, which delves into questions of patronage and cultural exchange; shorter but still relatively comprehensive are the essays by Torelli (2006; 2007), Cornell (2000), and Welch (2006). Coarelli's books on the different topographical zones of the city from beginning to end of the Republic (1983; 1988a; 1997) provide extensive political and cultural context for the city's buildings. Gros (1973; 1976b) and Zevi (2003) both focus specifically on the question of Greek influence on Roman architecture; of these, Gros pays particular attention to the career and impact of Hermodorus of Salamis. For the Hellenistic architecture to which

Romans looked, Winter (2006) is the most recent and comprehensive account; Gruen (1992) is an excellent discussion of the broad-ranging impact of Greek culture on Rome. For information on the constitution Lintott (1999) is essential, as well as excellent essays in Flower (2004) and Rosenstein and Morstein-Marx (2006); the interplay and tension between competition and consensus in Republican Rome is particularly well assessed by Hölkeskamp (1993).

CHAPTER THREE

Creating Imperial Architecture

Inge Nielsen

Introduction

The creation of Roman imperial architecture was closely connected to the city of Rome and to the personalities connected with the creation of the Empire itself. Thus the political leaders of the Late Republic, Pompey the Great, Caesar, and Octavian, prepared the way for a new architecture suitable for a great empire, and the first emperor Augustus, the former Octavian, continued their work with the addition of "royal" architecture like the palace and the temple for the imperial cult (Wallace-Hadrill 1993).

In this chapter I shall review the various architectural forms that evolved over the latter half of the first century BCE and the principles of design used in Rome during the transition from the Late Republic to the early imperial period (ca. 50 BCE–14 CE). Roman architectural form is, to an important degree, a factor of intended function; thus it is of primary importance to recognize the new functions that followed the creation of imperial Rome and how the contingent forms associated with political and social discourse were accommodated by architects and patrons. In this period the propaganda value of large architectural projects was paramount. Military and political leaders like Pompey, Caesar, and Octavian relied upon their popularity among the plebs for attaining and retaining power.

This political reality was not new to the middle of the first century BCE. The previous century had seen a series of politicians and generals who used the language of architecture to reinforce their claim to power (see Chapter 2). The primary inspiration for the building activities of these dominant men and

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their families came from the programs of Hellenistic kings past and present, who had ruled the eastern Mediterranean since the later fourth century BCE. Roman generals had direct contact with the palaces and public monuments of these Hellenistic kingdoms during their military campaigns in the East. In addition to this exposure to the tastes and preferred forms of the Hellenistic monarchs, there existed in Italy itself a long tradition of institutions and buildings that could be adapted by the capital's leading men to promote a suitable foundation for the "power-architecture" of the Late Republic and Augustan period. Augustus was notable in his desire to forge a close bond between his regime and the old traditions of Rome and Latium, especially those that could serve to legitimize his reign. In particular, certain "regal" traditions referencing Etruscan and Roman monarchs of the seventh and sixth centuries BCE, as well as religious institutions from the same early period, were invoked in the building programs of Augustus (Hofter 1988; Zanker 1988; Wallace-Hadrill 1993; Favro 1996).

The creation of what we can characterize as "imperial" architecture was thus a product of the competition for power by the dominant men of the period, of a manipulated tradition of Rome's regal past, and of an adaptation of imported architectural forms, readily to be found in the lands of the newly conquered Hellenistic monarchies. Since it was important for Pompey, Caesar, and Octavian/Augustus also to play the traditional roles of respectable republicans, certain institutions and elements associated with the venerable Republic were scrupulously maintained in recognizable forms, even if in practice their efficacy was greatly diminished. These facts explain the variegated and complex picture that emerges for the city of Rome and its provinces in the latter half of the first century BCE (Coarelli 1988b; Favro 1996).

Some of the building types that housed the functions of the new political order had been part of the urban landscape for generations: temples, altars, civic buildings like the Curia, and structures for entertainment, such as theaters and circuses. Others were developed during the second and first centuries BCE in step with the conquest of the Greek world. Wealthy Romans now built great houses and villas embellished with peristyle courts, gardens, precious mosaic floors, and wall paintings, mimicking in many ways the aristocratic architecture of the Hellenistic kingdoms, and these same patrons looked to the monumental tombs of the Hellenistic kings as models for their own final resting places (while also paying tribute, as we shall see, to indigenous Italic practice). The modest Tuscan-style temples with mudbrick walls and terracotta revetments were rebuilt as systematized sanctuaries that included marble temples in porticoed courtyards, often situated in spectacular settings. The same is true for institutions that accommodated competitive sporting events, based initially on the Greek gymnasium, but in Rome and Italy expanding rapidly into complexes that included luxurious gardens, parks, and great

bath buildings. The libraries introduced to Rome in this period had their roots both in the royal palaces of the Hellenistic kingdoms and in the gymnasia. This process of acculturation resulted as well in the introduction of new building types, including the basilica, the public *thermae*, the theater-temple, and the amphitheater, as well as special-purpose political structures like the sumptuous voting place, the Saepta Julia, of the Campus Martius (Hofter 1988: passim).

1. Functions Served by the New Architecture

To understand the new architecture that developed in connection with the creation of the Roman Empire, it is necessary to recognize the new political functions of the period, often closely connected with propagandistic goals that required architectural accommodation. Foremost among these was the creation of spaces to showcase and celebrate the power of the individual, at first the triumphant general and subsequently the person of the emperor and his family. The transition from a democratic republic to a system of autocratic rule and the personal patronage of public spaces by the elites who vied for absolute power affected all manner of public spaces where governance, religious rituals, education, entertainment, and public hygiene occurred. In some cases, it is difficult to isolate these functions into discrete spaces. For example, the new *fora* built by Caesar (ded. 46 BCE) and by Augustus (ded. 2 BCE) as well as Pompey's earlier monumental complex on the Campus Martius (ded. 55 BCE) variously served entertainment, religious, and political functions (see Map 4). In the tradition of the Republic, when elite men conducted business with their clients from the settings of their private homes and villas, Rome's late republican leaders and the subsequent emperors created official residences in the most prestigious neighborhoods of Rome. These included the *horti* (formal gardens) on the outskirts of Rome, such as those owned by Lucullus and the wealthy Etruscan Maecenas, Augustus's personal friend, and the *domus* on the slopes and summit of the Palatine Hill, to which many of the traditional rituals of state, including meetings with the Senate or the greeting of foreign ambassadors, were transferred from their traditional setting in the old Forum Romanum. Foremost among these was the Domus Augusti, which will be discussed in more detail below.

The development of such novel spaces, including the so-called "imperial" *fora* and the Palatine's palace complex, took place alongside the refurbishment and rebuilding of older and traditional public structures. It was important for the ambitious generals of the Late Republic as well as the first emperor, who saw himself as *primus inter pares*, that the structures associated with

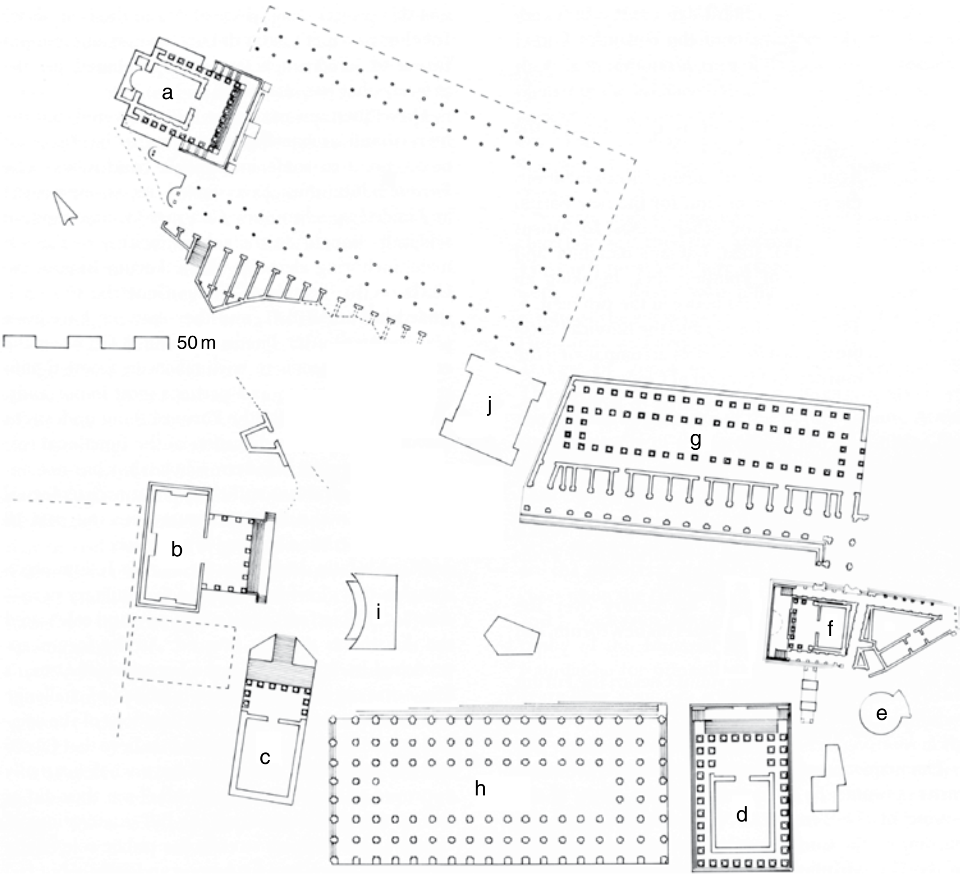


Figure 3.1 Plan of the Forum Romanum and the Forum Iulium: (a) Temple of Venus Genetrix facing the Forum of Caesar; (b) Temple of Concord; (c) Temple of Saturn; (d) Temple of Castor; (e) Temple of Vesta; (f) Temple of Divus Iulius; (g) Basilica Aemilia; (h) Basilica Julia; (i) Imperial Rostra; (j) Curia Julia. *Source*: Ulrich after Ulrich 1993: fig. 1.

republican institutions were preserved, thus creating the impression that the ruler was a steward of Roman tradition and values. A good example is the fate of the old Curia Hostilia on the Forum Romanum, which, although demolished in the mid-first century BCE to make room for Caesar's new Forum Iulium, was nevertheless rebuilt, reoriented, and renamed "Curia Julia" as part of the new forum project (Figure 3.1; Anderson 1984; Ulrich 1993; Morselli 1995). Such an appropriation and redefinition of the political center of Rome was only possible for a man with power that was regal in every sense but name. The Forum Iulium itself looked little like the old Forum Romanum, but was dominated by a podium temple with an apsidal *cella* combining both Italic and Hellenistic elements, and included a speakers' platform in front of it

reached by steps from the back (Figure 11.4). The temple was dedicated to Venus Genetrix, Caesar's divine ancestress (Ulrich 1984; Amici 1991).

The Forum Romanum as the traditional center of political activity in the capital was hardly ignored (Figure 3.1). Even before achieving absolute power as "Augustus," Octavian continued Julius Caesar's plans to reorganize the original forum by renovating the Basilica Aemilia and building the Basilica Julia on the site of the earlier Basilica Sempronia, the porticoed facades of which made the area look more like a Hellenistic agora (Coarelli 1983). The overhaul of the old forum was further enhanced by Octavian's construction of a shrine to his deified father by adoption, the Temple of Divus Julius, a sanctuary for a Roman interpretation of the Hellenistic ruler cult and not accidentally situated near Julius Caesar's official residence as Pontifex Maximus, the Regia, seat of the first Roman kings. Like the nearby Temple of Venus Genetrix, the shrine of Divus Julius combined traditional and novel elements: a high podium, *peripteros sine postico* plan, and a facade *rostra* intended specifically for imperial use (Ulrich 1994). With the original free-standing Rostra built by Caesar and restored by Augustus after the battle of Actium (31 BCE) placed at the opposite (west) end of the forum's open space, and the addition of a triumphal arch (29 BCE, with a second added in 19 BCE) that included references to the victory of Actium and the return of the standards taken by the Parthians, by the time Augustus celebrated his triple triumph in 29 BCE, the venerable Forum Romanum was transformed from a space that had accommodated public assemblies and law courts to one that proclaimed the achievements of the emperor and his family. Even before the ascendancy of Octavian, Julius Caesar had transplanted some of the most important political activities, such as voting, from the forum to the Campus Martius (the Saepta Julia). As I pointed out earlier, in Caesar's Rome the Senate itself was to be accommodated in a curia that was as much a part of the Forum Iulium as it was the original Forum Romanum.

Of the buildings encircling the forum square, the basilicas are of special interest. The first recorded basilica built in Rome was the Basilica Porcia, situated near the Curia Hostilia in 184 BCE (Livy 39.44.7). These large covered halls could host many different functions, including law courts and commercial activities. Religious functions could be accommodated as well: already the basilica built by Vitruvius (*De Arch.* 5.1.8) at Fanum incorporated a sanctuary, or *aedes*, for Augustus to serve the imperial cult. The civic basilica was destined later to serve as an imperial audience hall (i.e., Trier, ca. 300 CE) and was ultimately adopted in the fourth century to house the liturgy of the early Christian church. These diverse functions were likely anticipated in the public rooms of Hellenistic palaces, which served royal functions including throne room *cum* court room, and, implicitly, as places for the local ruler cult (Nielsen 1997); thus the term "basilica" itself was apparently derived from the Greek

word for king, *basileus.* Significantly, these buildings were often organized around a primary axis, the focal point of which was a rectilinear or apsidal alcove enclosing a throne or altar, or a raised tribunal for the judges. While Rome's Basilica Aemilia and Basilica Julia in their present form only date back to the Augustan period, the basilica in Pompeii's civic forum, dating to ca. 120 BCE, may give an impression of the appearance of Rome's earliest basilicas in the second century BCE, despite the Pompeian hall's unusual orientation of having one short side border the forum space. The importance of the building type is apparent from the many that were built in the western provinces from the Augustan period onwards.

2. Religious Functions: Public Cults and Imperial Cults

As has already been emphasized, political and state religious functions were often intermingled in a single building, a situation established in the early years of the Republic and increasingly manipulated by the later republican triumvirs who enjoyed near absolute executive power. By the second century BCE, the victorious generals back from their campaigns in the East had begun to dedicate great manubial sanctuaries in Rome, creating a new type of complex, inspired by Hellenistic models, that was characterized by a closed peristyle court with one or more temples in the center (see Chapter 2 and Figure 11.3). Some of the new temples were overtly Hellenistic in appearance, such as the peripteral Temple of Jupiter Stator in the Porticus Metelli, constructed in solid marble, built by the celebrated architect Hermodoros of Salamis in 146 BCE (Vitr. *De Arch.* 3.2.5). These sanctuaries, including the Porticus Philippi (179 BCE) and the Porticus Metelli (147 BCE), were initially built outside the *pomerium*, in the southern part of the Campus Martius. Only the Porticus Octaviae, which replaced the Porticus Metelli between 33 and 23 BCE (by Augustus in his sister's honor), is still partly preserved (Coarelli 1997). It incorporated an apsidal hall at the back, probably the *Curia Octaviae*, flanked by two libraries known from the Severan *Forma Urbis Romae* (Pliny *HN* 36.28).

An important difference between the Republic's earlier urban sanctuaries and those built by Rome's last republican generals is that the latter group often featured shrines dedicated to deities with whom their patrons claimed a special personal relationship. Thus Pompey built a temple dedicated to Venus Victrix, a goddess once worshipped by Sulla, above his theater-*porticus* complex in his villa gardens on the Campus Martius (Sauron 1987; Jolivet 1996; Gros 1999; 2000). Similarly, Caesar's Forum Iulium housed a temple for the

dictator's tutelary deity and ancestress Venus Genetrix, this time built within the old *pomerium*. The self-reference of Augustus's aforementioned Temple of Divus Julius in the Forum Romanum is bold and unequivocal. Augustus's own Forum Augusti (ded. 2 BCE), built north of the Forum Romanum and adjacent to the Forum Iulium, included an apsidal temple for Mars Ultor (a direct reference to the civil wars that followed Caesar's assassination) and incorporated an iconographic program with unprecedented royal connotations, linking the emperor to the legendary founders of Rome (Zanker 1968). Five years before his victory at Actium in 31 BCE, Octavian had begun a temple for his tutelary deity Apollo on the Palatine, which was finished in 28 BCE. It was raised on private ground and built to communicate directly with his own house – a brazen and unprecedented act of self-promotion (Zanker 1983; Zink 2008).

3. The Domus Augusti and Augustus's Buildings on the Campus Martius

Between 36 and 27 BCE, during the tumultuous years of the triumviral period, Octavian constructed a grand residential complex that included a residence, a Temple to Apollo, a portico with statues of the Danaids, and Greek and Latin libraries (Carettoni 1983; Nielsen 1993b; 1999: 171–180; Mar 2005: 78–101; Iacopi and Tedone 2005/2006; Quenemoen 2006). Located on the southwest slope of the Palatine Hill, among the legendary sites of Rome's founding, the extant structures suggest a complex constructed on terraces in a symmetrical composition that culminated in the Temple of Apollo (Figure 3.2). On the upper terrace, the temple to Augustus's tutelary god, Apollo, rose in the center of a narrow rectangular precinct accessed on the north by an arch dedicated to Augustus's father, Gaius Octavius (Tomei 2000). The monumental podium temple was among the first generation of temples to employ design elements that would become characteristic of the imperial period, namely the Corinthian order and Luna marble, vividly painted (Lugli 1953; Quenemoen 2006; Zink 2008; see Chapter 11). Framing the temple on the lower terrace are two peristyles. The western peristyle consisted of elegant, residential rooms; the well-preserved north side was symmetrically laid out around a great central hall with benches for meetings flanked by two private libraries. On the eastern side were situated a Corinthian *oecus*, a second-story chamber with Egyptianizing décor inside, and a ramp that provided direct access to the precinct of Apollo. The eastern peristyle, which is neither well-preserved nor well-documented, opened onto larger rooms that indicate a more public function for this space. Connecting the two peristyles on the

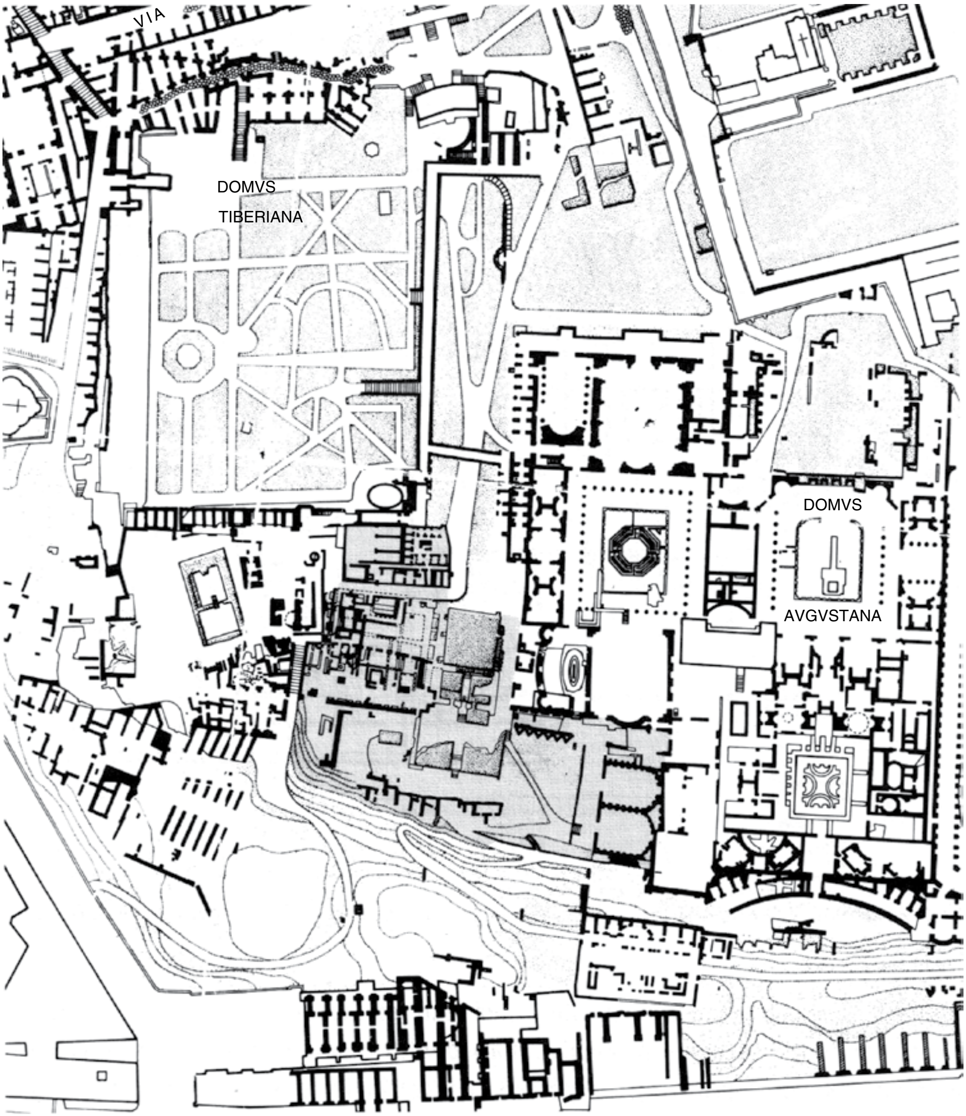


Figure 3.2 Plan of the Palatine with the House of Augustus. *Source*: Nielsen 1999: fig. 91.

south was a terrace that gave access to the Circus Maximus via a monumental staircase and propylon to the south (Mar 2005: 78–101). While certain parts of the complex are well preserved, nothing remains of a vestibule with its famous portal, crowned by a *corona civica* and flanked by laurel, as mentioned by Augustus himself (*RG* 34.2) and by Ovid (*Fast.* 4.951–954). The so-called Portico of the Danaids and the Greek and Latin libraries have yet to be identified with certainty among the extant remains.

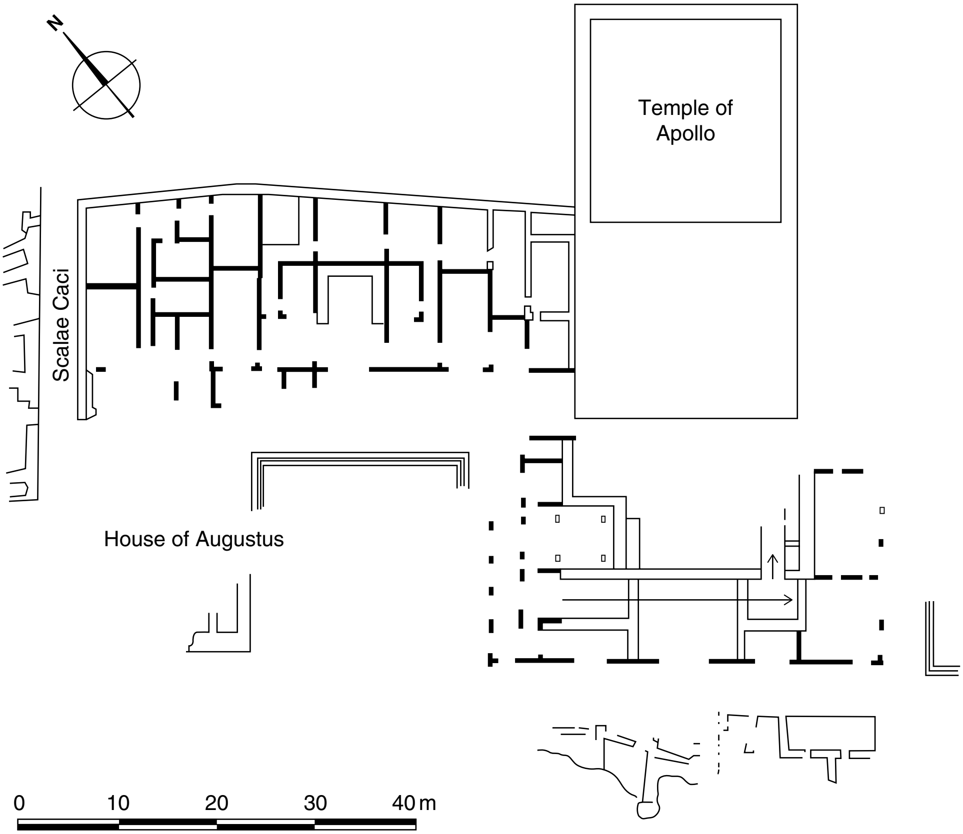


Figure 3.3 Plan of the House of Augustus according to Carettoni. *Source*: D. Quenemoen after Carettoni 1983: plan 1.

The location of such structures known only from literary sources and the chronology of those that are extant are currently debated. Carettoni (1983) originally suggested that the temple and lower terrace were constructed as a unified whole between 36 and 28 BCE (Figure 3.3). On the lower terrace, he identified the western peristyle as the private residence and the eastern peristyle court as the space for public reception. Recently, Iacopi and Tedone have offered a revised interpretation of the site's chronology based upon their new investigations of the site. They argue that the lower western peristyle and remains of republican structures below the Temple of Apollo should be identified as the House of Hortensius, which, according to Suetonius, Octavian purchased in 42 BCE. In a second phase, dating to 36 BCE, he extended the house with the construction of the eastern peristyle and a connecting gallery, including a vestibule that gave access to the house from the south. Not until a third phase, dated to after the Battle of Actium in 31 BCE, was the temple itself built (2005/2006; Figure 3.4). At this time the two peristyles and the gallery on the lower terrace

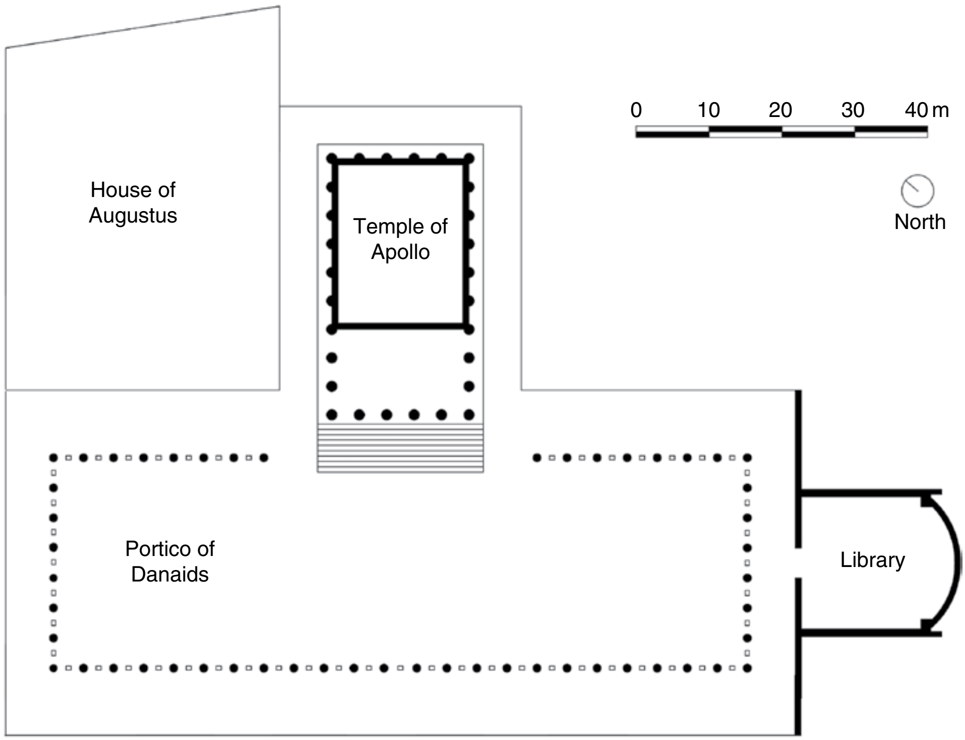


Figure 3.4 Plan of the House of Augustus in the last phase according to Iacopi and Tedone. *Source*: D. Quenemoen after Iacopi and Tedone 2005/2006: tav. 8.

were buried in order to create a terrace for a large rectangular precinct set perpendicularly to the Temple of Apollo and framed by the famed Portico of the Danaids. Opening off the eastern side of the portico were the public libraries, while the residence proper stood to the northwest of the temple and included the Casa di Livia. Quenemoen has since challenged this revised chronology and reconstruction of the site, arguing that a geometric rationale based on the 75-foot width of the Temple of Apollo served as the starting point for the geometric design of the complex and generated a unified design between the upper and lower terraces (Quenemoen 2009). She and Tomei further suggest that the Portico of the Danaids framed the precinct of Apollo on the upper terrace (Tomei 2000; Quenemoen 2006). The burial of the lower terrace, which is indeed documented by a massive concrete wall crossing the western and eastern peristyle courts as well as by other foundations in *opus reticulatum* and *opus testaceum* in the western peristyle, should be dated to a later period, likely under Nero and Domitian (Carettoni 1983; Pensabene 1997; Quenemoen forthcoming).

The details of the reconstruction and chronology aside, the fact remains that this combination of private space, public reception areas, and sacred spaces was built in the waning years of the Republic and, as such, should be

viewed as a bold and revolutionary statement of the image of power that Octavian sought in Rome before he received the title "Augustus" in 27 BCE (Nielsen 1999: 171–180). On the one hand, the complex reflects Augustus's well-known political strategy of de-emphasizing his role as absolute ruler of Rome. Throughout antiquity, ancient authors employed "*domus*," the customary appellation for a private house, to refer to the new emperor's official residence. Certainly, this complex included spaces and hosted a great many functions one would have expected in a traditional *domus* of an elite republican, including an atrium for salutation and a peristyle court for private living and entertaining. Yet, the presence of such prominent rooms around the peristyle and the inclusion of libraries were frankly imitative of the palaces of the Hellenistic kings. The physical connection to a place of public assembly, in this case the Circus Maximus, was another feature borrowed from Hellenistic palaces and a characteristic that would be often mimicked in the later palaces of the Roman emperors. The sacral nature of his authority was achieved through parallels to the great terraced sanctuaries of Latium (see Chapter 12) and proximity to the sacred, ancestral sites connected to the early history of Rome and to his divine ancestors through his adoptive father, Caesar. To the west stood the oldest building on the Palatine Hill associated with the "Regal" period of Rome: the so-called hut of Romulus, believed to be the residence of the founder and first king of Rome (see Chapter 1). In addition, the Domus Augusti was a neighbor to the sanctuary of Magna Mater, a goddess who was identified with the Idaean Aphrodite/Venus, herself promoted as the ancestress of the Julian line through her son Aeneas (Pensabene 1998; 2004; see Chapter 2). Finally, one should not forget that Apollo was the defender of Troy, from where Aeneas fled to Italy. Augustus's use of such divine ancestral relations to legitimate his power later reached maturity in the iconographic program of the Forum Augusti.

The ambitions of Octavian were revealed not only by his palace, but also by the bold design and location of his monumental tomb on the Campus Martius, associated by tradition with the kings of Rome and especially the Tarquinii (Coarelli 1997: 590; Serv. *ad Aen.* 9.272). The future emperor's "mausoleum," the name itself borrowed from the famous royal tomb at Halicarnassus of the Carian king, Mausolus (d. 353 BCE), was an architectural creation that combined both traditional and novel features destined to be imitated by wealthy contemporaries as well as future emperors from Hadrian (d. 138 CE) through the early Christian period. The form was that of an immense cylindrical *tumulus*, a tomb-type especially connected with aristocratic Etruscan families who lived just north of Rome (e.g., at Cerveteri) and had once used such tombs between the seventh and sixth centuries BCE. The Mausoleum of Augustus, however, surpassed even the largest Etruscan *tumuli* in size, reaching 87 m in diameter. Its earthen *tumulus*, supported by an enormous masonry

drum, was covered by a sacred grove. Behind the monument was a park that included the *ustrinum*, a platform built for the funeral pyres of Augustus and his successors (Strab. 5.3.8). Octavian clearly intended his tomb to serve as a dynastic/family grave, and indeed many members of the Julio-Claudian dynasty were interred there (von Hesberg and Panciera 1993). The best-known example of this combination of personal and dynastic monument is the palace (*basileia*) of Alexandria, where the Ptolemies built a dynastic tomb, the *Sema*, which included also the grave of Alexander the Great (d. 323 BCE). The last to be buried there was Cleopatra VII (Strab. 17.1.8).

In the vicinity of his mausoleum Augustus would raise other buildings to celebrate and legitimize his rule, most notably the Ara Pacis (13–9 BCE). A monument to victory and a symbol of the Augustan peace (Moretti 1946), the altar was decorated with a processional frieze that evoked the Parthenon of classical Athens in a way similar to that in which caryatids in his Forum Augusti also made direct reference to the classical monuments of the Athenian acropolis. In addition, he included a monumental sundial with an Egyptian obelisk as a gnomon (ded. 10 BCE; Buchner 1982), a symbol among other things of Augustus's triumph over the legendary land of Egypt and his own "pharaonic" associations to the sun-cult (Model 2). Thus, over time Augustus placed an indelible stamp on this northern area of the Campus Martius, the zone first encountered by visitors reaching the city from the north.

The theater complex built by Pompey the Great in the mid-first century BCE had already anticipated the kind of building program in the Campus Martius I have just described (Model 2, top). The combination of a permanent theater with crowning temple and a great porticoed garden behind it was a monumentalization of a building type previously known exclusively in a religious context, namely the cultic theater built in front of a temple and used for Rome's *Ludi Scaenici* (Nielsen 2002: 196–204; see Chapters 2 and 12). So-called "theater-temples" pre-dating Pompey's complex have also been found in some cities of central Italy dating from the early second century BCE (e.g., at Gabii in Latium). Before Pompey undertook his ambitious project, there existed only one permanent theater in Rome, albeit of a primitive, linear form, in front of the Temple of Magna Mater on the Palatine. The first permanent theater of conventional plan documented in Rome, built in 154 BCE below this same temple by the Lupercal (only to be torn down shortly afterwards), was probably also used for drama connected with religious festivals (Goldberg 1998; Nielsen 2002: 172–175). The association of a theater with a nearby temple is also documented through the Temple of Apollo Medicus in the southern part of the Campus Martius, which during the *Ludi Apollinis* was furnished with a provisional theater of wood at least from the early second century BCE (Livy 40.51.3). The addition of a *quadriporticus* with gardens

behind the stage building of a theater had also been developed from at least the second century BCE, such as at Pompeii, and Vitruvius praises this arrangement in his discussion of theaters (*De Arch.* 5.6.9). Pompey developed the *quadriporticus* at his own theater by adding a rich program of statuary, much culled from spoils brought back to Rome from his many victories in the East. He also added a curia to house meetings of the Senate, named after himself, a direct challenge to the supremacy of the old Roman Forum for such meetings and one that Julius Caesar would counter with the construction of his own Forum Iulium and its new Curia Julia.

The inclusion of a temple dedicated to Venus Victrix at the top of Pompey's Theater established an important precedent for Caesar's Temple of Venus Genetrix and the Augustan temples of Mars Ultor, Divus Julius, and Apollo Palatinus. In each case, the patron of the temple claimed a personal connection to the deity honored. The popularity of Pompey's Theater as a symbol of his beneficence to the city was not lost on his contemporaries. We hear that Caesar planned to build his own theater below the Capitoline Temple on the slopes of the Tarpeian Rock (Suet. *Iul.* 44.2). The project, never realized, was replaced by a permanent theater built on the site of the aforementioned cult theater associated with the old Temple of Apollo Medicus; the new Theater of Marcellus (ded. 12 BCE) was paid for and dedicated by the slain dictator's successor and adopted son, Augustus (Nielsen 2002: 177–179).

4. Entertainment

Moving from the category of "cultic theaters," (i.e., those that were paired with temples and placed in a sanctuary), we see during the Augustan period the appearance of another kind of permanent theater, which, with certain caveats, we can term "secular." The models for these were Greek, ranging from sites in Greece and Asia Minor to those in southern Italy and Sicily. The Greek theater plan was adapted to serve new kinds of drama popular in Rome, like the mime and the pantomime (Bieber 1961: 147–189 and passim). These new freestanding theaters in Rome, including the Theater of Marcellus and that of Balbus, also provided a public venue from which the emperor could make appearances to the population at large (see Chapter 15).

Theaters were not the only structures designed for entertainment that would undergo modifications over the period of the Late Republic and Early Empire. The circus was an old form of building in use from Rome's regal period, possibly with Etruscan antecedents (Humphrey 1986; see Chapter 15). Under Caesar (Pliny *HN* 36.102) and Augustus the outdated Circus

Maximus was monumentalized by adding stone seats, a new imperial box (*pulvinar*, cf. Aug. *RG* 19) and elaborate decorations to the *spina*, including the great Egyptian obelisk transported to Rome in 10 BCE (Pliny *HN* 36.71). As previously discussed, the Circus Maximus was physically and visually connected to the Domus Augusti on the neighboring Palatine Hill, and, like the theater, could serve as a venue from which the emperor could show himself directly to the people of Rome.

As a place for imperial display and public munificence, the amphitheater, too, would play an important role as an architectural setting for the emperor's public appearances (see Chapter 15). Augustus must have realized its potential, for in the same year (29 BCE) as he dedicated his new structures in the Roman Forum (see above), a new stone amphitheater, the first of its kind using permanent materials in Rome, was inaugurated in Rome by Statilius Taurus (Dio Cass. 51.23.1). Augustus apparently planned an even larger stone amphitheater in Rome, a project never realized (Suet. *Vesp.* 9).

5. Hygiene, Sport, and Education

Among the most revolutionary creations of Roman imperial architecture are the great imperial bathing complexes (*thermae*; see Chapter 16). The unique building type, which combined a special-use bath building with an adjoining area for sports and recreation, had its origins in two Greek public buildings, the *balaneion* and the *gymnasion* (Nielsen 1993c; Yegül 1992). The melding of these two special-use structures into a coherent architectural unit, however, took place in Italy, probably in multicultural Campania, where the unified type is first documented from the fourth century BCE (at the Stabian Baths in Pompeii). Public baths had already existed in Rome from the middle republican period, but gymnasia of the Greek type were not embraced there, since another kind of educational model, without sport and music, was preferred (Clarke 1971; Marrou 1977).

The appearance of the first integrated *thermae* in Rome coincides with the period of Augustan patronage, particularly that of Marcus Vipsanius Agrippa. The siting of these prototypes is interesting; they were incorporated into the grounds of Agrippa's private villa with its elegant gardens in the Campus Martius. At his death in 12 BCE, the villa complex was bequeathed to the citizens of Rome and became public. The *thermae* of the estate can be seen as the first in a line of immense successors that would be built in Rome and the provinces. Here is another example of how the Campus Martius offered a setting for building programs we can associate with the new political order of the Late Republic: Pompey's theater-*porticus*-temple complex, followed by Caesar's Saepta Julia, Augustus's Mausoleum, and finally the Ara Pacis with

its neighboring monumental sundial. To these we can add the Thermae Agrippae, which are known today primarily from fragments of the *Forma Urbis Romae* and Renaissance drawings. The lavish bathing complex included not only a modern bath building with a developed hypocaust heating system and experimental rooms with concrete vaulting, but also a spacious sports and recreation area encompassing a *palaestra*, gardens, and a great swimming pool (*stagnum*).

Although the *thermae* were not generally used as schools or academies by the Romans, libraries were eventually included in some later imperial complexes, undoubtedly a reflection of the libraries found in the Greek gymnasia (Johnson 1991; Hoepfner 2002) and of the celebrated Hellenistic libraries associated with the palaces of contemporary rulers. Most famous of these is the library in the Ptolemaic palace of Alexandria, which included a *Museion*, a *Peripatos*, and an *Exedra* for studies, and a great *Oikos* used for dining by the scholars staying there (Strab. 17.1.8). Although the Library of Alexandria is known only through ancient literary sources, the similarly famous library belonging to the Attalid kings of Pergamon has been partially preserved. It belonged in part to the sanctuary of Athena on the Pergamene Acropolis and was also included in the *Basileia*, or palace, of the Attalids (Nielsen 1999: 102–111).

It is thus no mere coincidence that Octavian included both private and semi-public libraries in his palace on the Palatine. His close imitation of Hellenistic regal practice was itself part of a tradition that had already been established by the republican elite. Aemilius Paullus, for example, brought the library of the Macedonian kings from Pella to Rome after the battle of Pydna in 168 BCE (Plut. *Aem.* 28.6), and Sulla later stole part of Aristotle's library in the Lykeion gymnasium in Athens in 86 BCE and kept it in his villa at Cumae (Strab. 13.1.54). These libraries are not preserved, but the private library found in the Villa dei Papyri in Herculaneum has given us an impression of their appearance (Dorandi 1995).

The first public library in Rome was planned by Caesar but only realized five years after the dictator's death by Asinius Pollio in 39 BCE. Housed in his Atrium Libertatis (Pliny *HN* 7.115; Purcell 1993), its closeness to the Forum Iulium indicates that Caesar had probably envisioned a unified complex. Octavian/Augustus expanded on this new form of public patronage when he added public libraries in 28 BCE to the portico of the Danaids, already described as part of his Palatine palace complex, which in fact already included a private library for his personal use. Both Caesar and Augustus, then, established precedent that would be followed by future emperors of Rome: Vespasian's Greek and Latin libraries in his Templum Pacis (ded. 75 CE) and Trajan's in his monumental forum, flanking his eponymous column (ded. 113 CE), are prime examples.

6. Conclusion: From Hellenistic and Italic Architecture to Roman Imperial Architecture

I have argued that the development of an imperial architectural type is one that has roots in both the Hellenistic East and the old traditions of republican Italy. The former began with the direct contact made by Roman proconsuls with the Hellenistic empires of the eastern Mediterranean, whether as diplomats or as conquerors, over the course of the second and first centuries BCE. Hellenistic palaces and their associated structures – peristyles, gardens, audience halls, and banqueting spaces – would all prove to be models for reinterpretation back in Italy (Hoepfner and Brands 1996; Nielsen 1999). The association of these royal residences with buildings associated with culture and entertainment, such as libraries, theaters, gymnasia, and hippodromes (circuses), would also have a tangible impact on the layout of the imperial residences of Rome. Augustus's decision to include an imposing shrine to Apollo as part of his palace complex can be seen in part as an Italic counterpart to the Hellenistic practice of incorporating temples for the tutelary deities of patron kings as well as shrines for the dynastic cult, venerating the royal predecessors of the present owners of these palaces. Funerary practice was influenced as well; ancestral tombs were sometimes included in eastern palaces, serving, like the dynastic cult, to legitimize the power of the king.

The introduction of these Hellenistic elements into Italy took place over time, making their first appearance in the great villas of the elite, including those built by Roman generals returning from the eastern campaigns (Nielsen 1993b). These were initially built far from Rome, often in Hellenized Campania, but they gradually moved closer to the capital until, by the middle of the first century BCE, they virtually surrounded the republican center of Rome, especially in the area of the Campus Martius (Cima and La Rocca 1986; 1998; Wiseman 1987; Purcell 2007). In particular, I have described the projects of Pompey the Great, who built his lavish theater complex on his own property, and a little later, Augustus's general and friend Agrippa, whose private holdings included gardens, the first monumental *thermae* of Rome, and a temple, the original Pantheon, to honor Augustus (Roddaz 1984). Pompey's, Caesar's, and Agrippa's private holdings were literally inherited by the citizens of Rome and as public benefactions had great impact on the late republican city (Purcell 2007: 372). It is no coincidence that these estates were gradually taken over by the emperors, who opened some of their parks for the citizenry. Seen in this perspective, the architectural features of the House of Augustus on the Palatine are not quite so surprising, yet it is indeed revolutionary that he built his monumental palace-complex *inside* the *pomerium*. Although the old republican elite had already long established residence on the venerable

Palatine Hill, their *domus* were private in nature and not very large. Octavian transferred the Hellenistic palace-villa with its quasi-public and religious buildings right into the center of republican Rome.

Hellenistic models were not the only factors that determined the "new" imperial idiom, however. In republican Rome, overtly "regal" architecture was bound to threaten traditional Italic sensibilities; patrons and their architects worked to imbue these institutions with a "republican" aspect, as is witnessed by the palace of Augustus on the Palatine with its "public" libraries, "public" cults, and even a form of public access that paid homage to the old republican tradition of the *salutatio*. Invoking Rome's venerated past included cautious allusion to the early Roman kings. The temples built in the Late Republic and Early Empire were of a hybrid nature, combining Etrusco-Italic elements, including a high podium, a prostyle or *peripteros sine postico* plan with new materials, most notably white marble, and eventually the Greek Corinthian order (Gros 1976a; see Chapter 11).

Finally, it was the appearance and combinations of architectural forms to make connections to divinity, with a primary aim to legitimize autocratic rule, that helped forge an "imperial architecture," a practice well underway by the period of the Late Republic by the elite families who dominated the political spectrum. A claim to divine lineage can be traced back to the stories connected with Rome's first king, Romulus, and to the Hellenistic monarchs, who, beginning with Alexander the Great, all boasted divine family roots. In a similar vein are the tutelary deities invoked by the leading men of the Late Republic and the temples they vowed and built for them, funded with the spoils of war. Inspired by the claims of Sulla, Pompey the Great honored Venus/Fortuna as his divine patroness with his monumental theater-*porticus* complex on the Campus Martius; Caesar alluded emphatically to Venus as a divine ancestress through the temple built for her as "Genetrix" that dominated his eponymous forum, whereas Octavian claimed favor by Apollo and Mars Ultor, both presented as divine supporters in his fight for supremacy. The choice of Mars Ultor as the tutelary deity of his new forum complemented the larger iconographic program of this forum, emphasizing his victories over his adoptive father's assassins and his diplomatic victory and revenge over old insult by recovering the lost standards seized a generation before by the Parthians. These symbols of Roman supremacy were displayed in the temple itself, perhaps on the podium in the apse at the back of the cella (Ganzert 1996).

The creation of imperial architecture thus evolved rapidly in Rome in the late republican and early Augustan period, and the capital would be forever changed by the new buildings that transformed the city. The roots of this phenomenon were nurtured by the fierce competition between the great personalities fighting for power in the first century BCE who used architecture to

attain, reinforce, and legitimize their power. I have argued that these new forms were born both from traditional republican buildings conceived anew in terms of materials, scale, siting, and use, and the importation of new building types from the Hellenistic world, many associated with eastern kingship and its trappings, to create a novel idiom that proclaimed the new realities of politics and civic life at the center of empire.

GUIDE TO FURTHER READING

The main focus of this chapter has been on Rome, since it is here that we primarily see the creation of imperial architecture. The classic work that covers the ancient city of Rome is Coarelli's *Guida archeologica di Roma*, first published in 1974 and still in print with a revised edition of 2003. Two reference texts in English are indispensable: Richardson's topographical dictionary (1992) and Claridge, Toms, and Cubberley's guide book to Rome (2010). Scholarship from the period of the 1980s and 1990s, especially that which explores the influence of the Hellenistic period on Rome, includes the monumental catalogue of the exhibition on Augustus and the end of the Republic held in Berlin in 1988 (Hofter 1988), as well as Favro's (1996) and Wallace-Hadrill's (1993) individual studies on Augustan Rome. For the architecture and topography of Rome in general, of great importance is the series of books published by Coarelli including those on the Roman Forum (1983; 1985), the *Forum Boarium* (1988a), and the Campus Martius (1997). Discussion and bibliography of individual buildings can be found in the *Lexicon Topographicum Urbis Romae* (*LTUR* 1993–2000). Individual contributions published in a Festschrift dedicated to Eva Margareta Steinby, *Res Bene Gestae* (Leone, Palombi, and Walker 2007) are of interest for this topic. For early Roman architecture and building types in general one may still recommend Boëthius and Ward-Perkins's classic volume first published in 1970. For recent discussions of the various Roman building types, see the entries in *Der Neue Pauly* (1996–2003).

CHAPTER FOUR

Columns and Concrete: Architecture from Nero to Hadrian

Caroline K. Quenemoen

Introduction

> In the whole body of architecture in Roman lands, the most striking and fundamental change in stylistic direction took place during the latter half of the first century and early decades of the second. It was then that the sculptured, linear forms of the classical past were first firmly challenged by the canopied volumes of the future (MacDonald 1982a: ix).

The fire that destroyed most of Rome in 64 CE has long been regarded as a watershed moment in the history of Roman architecture, the catalyst for architects to embrace concrete as a design material and break free from "the shackles of the classical orders" (Wilson Jones 2000b: 96; also Ward-Perkins 1981; MacDonald 1982a: 92; Sear 1983; Ball 2003; for the fire, Suet. *Nero* 38; Tac. *Ann.* 15.38). Central to the narrative of the Roman architectural revolution are the emperors who ruled Rome at its height and their architects, who employed concrete to realize such grand imperial ambitions as the Domus Aurea and the Pantheon and found their names and achievements recorded for posterity (see Chapter 7). Even the Emperor Hadrian contributed, reputedly the inventor of the "pumpkin dome" and perhaps the genius behind his own villa at Tivoli.

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Yet the precise nature of this "revolution" and whether it should focus singularly on concrete and its aesthetic expression have been increasingly questioned as scholars have sought a more balanced history of Roman architecture and focused understanding on the underlying structural dynamics and constructional processes of monumental works (Lancaster 2005a; Ulrich 2007). Not only has the preservation of concrete buildings obscured the broader architectural tradition of the period, but the tendency to celebrate the pure geometric forms achieved by these spaces relegates the classical decorative schemes that adorned and often defined these spaces to secondary status. Looking more broadly at Roman architectural history, it becomes increasingly evident that Roman architects and builders neither thought of themselves as breaking radically with the past nor as establishing new tenets of architecture overnight. Late first-century architecture was firmly rooted in established conventions – materials, design practices, and construction techniques – and characterized by a great deal of experimentation and uncertainty. While there was indeed innovation in this period, the emphasis needs to be on the systematic development and refinement of the traditional conventions that enabled structurally efficient, constructionally economical, and spatially dynamic spaces.

Focusing on Rome and her environs, the following chapter synthesizes recent scholarship to understand the dynamic interplay of structure, construction, and design and the corresponding nature of change in this period. Beginning with an examination of structural and constructional practices illustrates the emergence of a highly specialized building industry that both systematized existing practices and created the conditions for innovation. The chapter then highlights fundamental design characteristics in this period, contextualizing them within the Roman architectural tradition. We find that the Roman penchant for blurring the distinction between artifice and reality achieves new heights, both on account of technical prowess and the use of architecture as an instrument of control in an increasingly autocratic imperial system. The focus then shifts to the design issue at the core of the revolution: how Roman architects fully realized concrete's structural properties, thus freeing concrete building from the structural constraints of the post-and-lintel building tradition. Likely employing the section extensively as a design tool for the first time, architects working in concrete redistributed structural forces to create dynamic interior volumes and buildings with non-congruent plans. At the same time, the extant projects from this period reveal that Roman architects were extremely interested in how concrete and classical columns could assume complementary roles in the creation of architectural space. This dynamic interplay between classical and concrete vocabularies was mutually enriching, permitting the evolution of the classical orders into a decorative element in which its own formal properties were reassessed.

1. Structure and Construction

An interest in optimizing structural performance and expediting the construction process characterizes the building industry from the reign of Nero to Hadrian. The demands of rebuilding Rome quickly and on such a massive scale after the fire of 64 (and subsequently in 80 and 104) not only made concrete the building material of choice but also accelerated structural innovation and constructional efficiencies in this medium. The material and its fundamental structural properties were not new; pozzolanic concrete, a chemically bonded mortar with a compressive strength of 200 kg/cm^2, had already been in use for nearly three centuries (Mark 1987: 144; see Chapter 9). While Roman builders did not understand its structural capabilities in the terms that we employ today, experimentation had yielded generally agreed upon principles by the first century CE, such as standard ratios of vaults and domes to the thickness of the walls (Wilson Jones 2000b). Nonetheless, innovation in the late first century CE came as builders sought to maximize its structural efficiency. Beginning in the Flavian period, builders carefully cleaned and sifted the pozzolana and employed hard slaked lime to produce a purer and stronger material (Van Deman 1912; Blake 1973; Lancaster 2005a: 56; Jackson *et al.* 2007). In addition, there was systematic attention to the gradation of aggregate according to its structural role in the building (Lancaster 2005a: 59–62; Bianchi *et al.* 2006; see Chapter 9). Doing so optimized the performance of concrete according to the structure's stresses and increased, however slightly, its tensile strength (Jackson *et al.* 2009). Most commonly Roman masons employed aggregates of dense leucititic lava for the foundations and brick and *Tufo Lionato* tuff for the walls in order to improve their weight-bearing qualities and lightweight volcanic materials – brown, glassy scoriae and light yellow and brown tuffs – in the aggregate in order to reduce the weight of the vaults (Bianchi *et al.* 2006). This practice was extensively employed for the first time in the construction of the Colosseum with the use of leucititic lava for the foundations and lightweight pumice in the vaults to reduce lateral thrust (Rea 2002; Lancaster 2005a: 60; 2005b). It attained its most sophisticated application in the Pantheon, where the weight of the aggregate not only becomes progressively lighter from the foundations to the oculus, but the combined use of bricks at the haunches and pumice at the crown provides the appropriate distribution of weight to reduce the lateral thrust of the dome (Lancaster 2005a: 158–161; 2009: 120–123). In addition, mortar composition was determined by structural function. The upper level vaults of the Colosseum included pumice in the mortar (Lancaster 2005a: 60), and analysis of the mortar used for the vaults of the Forum of Trajan and the Basilica Ulpia shows that the addition of ground pumice reduced the weight of the concrete 5–10%

over the composition employed for the walls, while brown, glassy scoriae in the aggregate further lightened the load (Bianchi *et al.* 2006).

Structural and constructional improvements to concrete were highly dependent upon the Romans' attention to the development of other materials and building techniques at the same time. Particularly important was the rapid development and standardization of the brick industry in the late first century CE (Bloch 1947). Wealthy aristocratic landowners excluded from patronizing public architecture in Rome capitalized on the building boom by transforming their estates into brickyards and mass-producing high-quality bricks in standard sizes derived from *bipedales*, which measured ca. 2 Roman feet (RF) square (see Chapters 9 and 10). Brick-faced concrete (*opus testaceum*) generally replaced *opus reticulatum* in wall construction; the modular building system dispensed with the carving of individual stones and enabled multiple crews to work simultaneously on different parts of the building. The use of brick relieving arches in walls also provided stability so that construction could continue before lower wall surfaces cured (Lancaster 2007: 139–140). In the Pantheon, three tiers of brick relieving arches of *bipedales* and *sesquipedales* created the necessary stiffness for the drum to be lightened by voids and the load of the dome to be carried by eight piers (Lancaster 2005a: 97–98; Martines 2009). Bricks also improved the strength and constructional efficiency of concrete vaults. *Bipedales* appear in the ribbing of concrete vaults beginning with the Colosseum (Lancaster 2005a: 88–90; Figure 9.8a). Not only did *bipedales* allow for a greater span (5.0–6.0 m), but they greatly expedited the building process by creating a structurally sound armature that could be built upon immediately. They also did not require cutting or more than one person to lift and to fit into place (Lancaster 2007: 139; Martines 2009). In the lower rooms of the hemicycle of Trajan's Markets (96–117 CE), the barrel vaults were constructed completely of brick ribs, probably to increase their strength and, on account of their quicker curing time, to enable construction to proceed at a faster pace (Lancaster 2000: 771; 2005a). The use of brick as linings over the wooden formwork of concrete vaults (Trajan's Markets) also protected the formwork from moisture, allowing it to be easily removed and reused (Lancaster 1998a: 299–305).

Traditional building materials also assumed more specialized roles during this period, demonstrating a holistic approach to design that sought to optimize performance by employing the material and technique best suited to meeting structural demands. The continued use of stone, travertine in particular, at points of great structural stress in concrete architecture reveals a keen awareness of the structural properties of different materials (DeLaine 1990: 417; see Chapter 9 and Figure 9.2). Examples of travertine employed as impost blocks can be found in many notable concrete structures: the lintel arches in the Domus Aurea (64–68 CE; DeLaine 1990), the cross vault of the Great Hall in Trajan's Markets (MacDonald 1982a: 86–88), and the brick ribs

constructed to distribute point load forces in the Trajanic Latrine in the Forum of Caesar and the Pantheon (Lancaster 2005a: 96–98; 2009: 199–220). While brick-faced concrete was used for the interior radial walls of the Colosseum, the outer ambulatory rings consisted of three concentric ellipses of travertine piers employed not only to carry the vertical load of the four-story structure, but to absorb the considerable radial thrust of the annular vaults, especially along the outer wall (Coccia *et al.* 2006: 761–764).

Even as architects and builders honed their craft, it is important to keep in mind the degree to which they were experimenting with structure and construction as they attempted increasingly larger buildings and more complicated designs. They were often quite uncertain of their choices, and undoubtedly their spectacular successes were equaled by catastrophic failures. The great scale of the semi-domes of Trajan's Markets (30 m) and the dome of the Pantheon (43 m) raised concerns about collapse and resulted in gradation of the aggregate and the construction of step-rings on the haunches in order to counteract lateral thrust (MacDonald 1982a: 109–110; Lancaster 2000: 766–767; 2005a: 158–161; 2009: 123–124). Similarly, the Great Hall of Trajan's Markets includes arched buttresses along the upper section of the vault (Perucchio and Brune 2008). Yet, structural analysis demonstrates that these features were frequently unnecessary; the buttresses of the Great Hall, for example, serve no structural function (Mark 1987; Lancaster 2005a: 158–161; Perucchio and Brune 2008).

2. Artifice and Reality

Capitalizing on this specialization, Roman emperors took the tradition of monumental building and engineering daring for symbolic value to an unprecedented scale (see Chapter 2). Contemporary authors stood in awe of the size and grandeur of architecture in this period (i.e., Suet. *Nero* 31 on the Domus Aurea; Tac. *Ann.* 15.42.4 on Nero's failed pool from Misenum to Lake Avernus), while the marvel and enormity of the Forum of Trajan and the Pantheon continued to inspire admiration well into the fourth century CE (Amm. 16.10.14–15). Oftentimes monuments and their inscriptions directed viewers to marvel at the work required to achieve such building feats. The scenes on the Column of Trajan record in minute detail the building capability of the Roman army and the role of building in extending Rome's reach (Coulston 1990; Thill 2010; 2011), while the inscription on the base records that the 100-RF height of the column marks that of the Quirinal Hill before it was excavated to create level ground for the construction of Trajan's Forum (*CIL* 6.960). Similarly, the *Tabula Traiana*, an inscribed plaque marking Trajan's extensive military road, directed visitors to recall the excavation of rocks and procurement of wood beams for its construction.

As imperial authority increasingly depended on the dissolution of artifice and reality (Bartsch 1994; Haynes 2003), large-scale building and engineering prowess served as a primary vehicle for constructing the emperor's world dominion and immortal status. Descriptions of buildings in this period are characterized by reference to their allusive nature, from the Domus Aurea with its pool "like the sea" and buildings like "cities" (Suet. *Nero* 39) to the Domus Flavia's evocation of heaven on earth (Mart. *Ep.* 7.56.1–2; Stat. *Silv.* 4.2.18–33). Hadrian's Villa dispensed with metaphor completely, creating the Empire in microcosm with its Canopus and Serapeum (S.H.A. *Hadr.* 26.5). Through scale and mechanical engineering feats, Roman architects challenged nature at its own game, the dangers of which Tacitus perceived all too well in his denunciation of the Domus Aurea: "The directors and contrivers of the work were Severus and Celer, who had the genius and the audacity to attempt by art even what nature had refused" (Tac. *Ann.* 15.42, trans. Loeb; similarly Stat. *Silv.* 1.2.156–157 on the *Domus Flavia*).

Among Rome's canonical building types, most doubled, if not tripled, the scale of their predecessors in this period: the Flavian amphitheater (189 × 156 × 48 m), the Basilica Ulpia (117 × 55 m), the Baths of Trajan (340 × 330 m), the Forum of Trajan, the Danube Bridge (1,135 m; O'Connor 1993: 142–145; Procop. *Aed.* 4.6.12–13; Dio 68.13; Figure 9.5), and the Horrea Galbae (21,000 m^2; *FUR* pl. 24; Richardson 1992), to name a few. And many structural feats of this period were never to be surpassed in the Roman period, from the diameter of the Pantheon's concrete dome at 43 m and the clear span of the *Aula Regia* in the *Domus Flavia* at 100 RF to the length of Apollodorus's segmented arch bridge at 1,135 m and the scale of the Colosseum in every dimension. Indeed, when Ammianus Marcellinus described Constantius II's visit to the Forum of Trajan in 357 BC, he highlighted the grandeur of the building and recognized that such monumental construction would "never again be duplicated by mortals" (Amm. 16.10.15).

Some of the wonder associated with the monumental architecture of the late first and early second century CE is attributed to the vastness of interior spaces, equal to the grandeur of the gods, as Statius's description of Domitian's *Domus Flavia* attests:

> The hall is sublime and vast: no hundred columns merely,
> But enough to hold the gods and heaven above the earth,
> Should Atlas retire…
> The ceiling is a distant view, and the eyes must strain to reach
> Its summit, to glimpse, it seems, the gilded panels of heaven.
> (Stat. *Silv.* 4.2.18–20, 30–31, trans. Loeb; cf. Mart. *Ep.* 7.56.1–2; 8.36)

In this period, the desire to create expansive interiors, with clear spans nearing and even exceeding 100 RF, characterizes both timber-trussed and vaulted

buildings. The nave of the Basilica Ulpia in Trajan's Forum (26.5 m wide; Amici 1982: 88; Packer 1997; Bianchi *et al.* 2006), the Temple of Venus and Roma (Barattolo 1973; Cassatella and Panella 1990), and the great halls of Domitian's Palace (*Aula Regia* ca. 30 m wide; *cenatio iovis* 29.05 m wide; Gibson, DeLaine, and Claridge 1994: 67–97) had massive timber-truss roofs (Ulrich 2007: 150–157). As the height of Roman buildings was traditionally greater than the breadth, rectangular wooden-roofed spaces reached ceiling heights up to 35 m (Gibson, Delaine, and Claridge 1994: 80–81). Timber-truss roofs covered large semicircular spaces as well, such as the apses of the Basilica Ulpia (Amici 1982; Packer 1997) and the *exedrae* of the Forum of Trajan (Packer 1997). Roman concrete was employed to similar effects, yielding vast, cross-vaulted halls in the Markets of Trajan and the imperial baths of Nero and Trajan and both domed and semi-domed pavilions in villas and baths (Yegül 1992; see Chapter 16). Building with concrete allowed architects to reach even greater ceiling heights, the Pantheon, at 43 m, being the tallest known interior space in the history of Roman architecture.

In the aftermath of the fire of 64, the pursuit of monumentality also affected the reconceptualization of Rome's cityscape from a series of discrete units to a more unified whole. The fire had spread quickly through Rome, enabled, according to Tacitus, by "the ancient city's narrow winding streets and irregular blocks" (*Ann.* 15.38). Subsequently, new codes were established that limited building heights and required setbacks from the street. In this context, multi-story *insulae* constructed of brick-faced concrete replaced wood as the chosen building material for dense urban housing. While the Marble Plan of Rome illustrates the presence of *insulae* in the urban landscape of second-century Rome, the well-preserved blocks of *insulae* in the port city of Ostia offer a vivid sense of Rome's late first-century appearance, in particular the uniformity and regularity that the new multi-story concrete architecture afforded (Calza 1916; Packer 1971; see Chapter 17 and Figure 17.1). In Rome, it is easy to imagine how wide streets and regularized setbacks allowed designers to create axes and planned views that drew attention to the wonder of large-scale imperial monuments, unifying imperial presence and authority against a homogenous backdrop of plebeian activity (see Chapter 21). Trajan would later reduce building heights from 70 to 60 feet, making the imperial building program appear even grander.

Scale was not the only way in which Roman emperors and their architects sought to match the gods. Mechanical engineering feats were also marvels of the period, demonstrations of emperors' abilities to blur the distinction between nature and artifice. Such play was a particular fascination of the emperor Nero (Charlesworth 1950: 71–72). Not surprisingly, theaters and amphitheaters – the traditional stages of artifice – were replete with innovations of this kind. Nero's wooden amphitheater built in 57 CE included a

forest that grew out of the hypogeum (Calp. Sic. *Ecl.* 7.69–72), and the Flavian Colosseum, likewise, dazzled spectators with its many trapdoors that permitted an ever-changing array of props, people, and animals to turn myth into reality (Mart. *Spect.*; Coleman 1990; Figure 15.4). Imperial palaces were famed for their wide array of mechanical marvels. Nero's Domus Aurea included ivory-paneled ceilings that opened to shower guests in flowers and perfume (Suet. *Nero* 34.2) as well as a circular dining pavilion (*coenatio rotunda*) that rotated day and night in sync with the heavens (Suet. *Nero* 31.2). Recently identified on the northeast side of the Palatine Hill in the area of the Vigna Barberini, the room measured 16 m across and had a superstructure of wood, which no longer survives. Well preserved are two-story substructures (10 m deep) in brick-faced concrete, consisting of an exterior ring wall (2.1 m wide) and a central pillar (4 m in diameter), which enclosed a mechanism that could be turned on two levels in order to make the room rotate (Panella 2011).

3. Designing in Section

While the design interest in vast, unobstructed spaces characterizes both timber and concrete building during this period, experimentation with the distribution of loads in concrete structures resulted in a more dynamic conceptualization of interior space, characterized by interpenetrating volumes and intricate sectional changes in multi-story structures. Even though concrete had been employed in Roman architecture for three centuries, the approach to design and the resulting buildings adhered to the tradition of post and lintel architecture, in which plan and elevation were integrally bound by the vertical alignment of load-bearing structures (Wilson Jones 2000b: 64–65). Since plans predicted elevations and vice versa, Roman architecture had, in essence, been conceptualized as discreet planar surfaces – the plan and the elevations – as Vitruvius's writings reflect; the purpose of plans is to determine the vertical elements of the building ("by the proper successive use of compasses and rule, through which we get outlines for the plane surfaces of buildings"), while elevations help figure out the proper proportions of a building (*orthographia* "a picture of a front of a building, set upright and properly drawn in the proportions of the contemplated work") (*De Arch.* 1.2.2, trans. Wilson Jones 2000b: 64–65). That such was the case in the design of republican concrete buildings is evident, for example, in the case of the Navalia located on the banks of the Tiber (Cozza and Tucci 2006). The grid arrangement and staggered heights of the piers supporting the barrel vaults mimic both the plan and clerestory roofing schemes of their wooden-roofed counterparts (see Chapter 2 and Figure 2.2). Even as baths offer a more

progressive use of concrete in the republican period (e.g., the curvilinear plans and vaulted spaces of the Stabian Baths; Yegül 1992), the rooms themselves do not reveal an interior spatial conception distinct from their rectilinear counterparts. The elevation is merely a vertical extrusion of the plan, and the exterior massing a reflection of the interior volume. Likewise, if we consider the architectural composition as a whole, the individual rooms function as discrete geometric units within the larger design.

During the Augustan period we find experimentation in thinking about design as three-dimensional volumetric form rather than two-dimensional planar surface – a realization that concrete was not limited to the structural logic of the trabeated system. Once again the evidence comes from bath architecture. The plan of the so-called Temple of Mercury at Baiae, originally one room in a larger thermo-mineral bath complex of a luxurious private villa, juxtaposes simple geometric forms – a large circle flanked by two squares – and the exterior massing reveals this simple geometric composition, just as the Stabian Baths at Pompeii (MacDonald 1982a: 11–12; Yegül 1992; 1996). Yet, the interior dissolved these geometric distinctions as the load of the central dome was distributed to the adjacent roofs rather than to walls separating the central room from the side halls. As a result, the entrance reveals a clearly defined axis through the space, and movement along this axis exposes the visitor to a series of shifting geometric volumes quite different from those suggested by the plan and exterior massing.

Employing better materials in a more specialized system, architects in the late first century embraced the flexibility of concrete to distribute loads, further complicating the relation between plan and elevation. While the evidence is lacking, the section, a vertical slice through the interior of the building, must have become an important element in the design process, allowing architects to understand complex structural relationships among vertical elements that were no longer aligned. The result is an architecture of complex interior spaces, from expansive interior volumes to multi-story structures with non-congruent plans.

The octagonal room in the Esquiline wing of Nero's Domus Aurea demonstrates a complex structural solution to create a design emphasis on interpenetrating volumes along multiple axes (Figure 4.1 and Figure 4.2). The centralized plan consists of an octagon that opens onto five rectangular rooms on the north side, a portico on the south, and corridors on the southwest and southeast. Buttressed by the vaults of the side rooms, the octagonal geometry of the central room is reduced to eight piers that support a segmented dome. Even as the dome inscribes geometry as finite, limited form, the broad doorways, the oculus cut into the dome's ceiling, and the vault haunch clerestory that brings light into the side rooms generate multiple vertical and horizontal axes that dissolve boundaries,

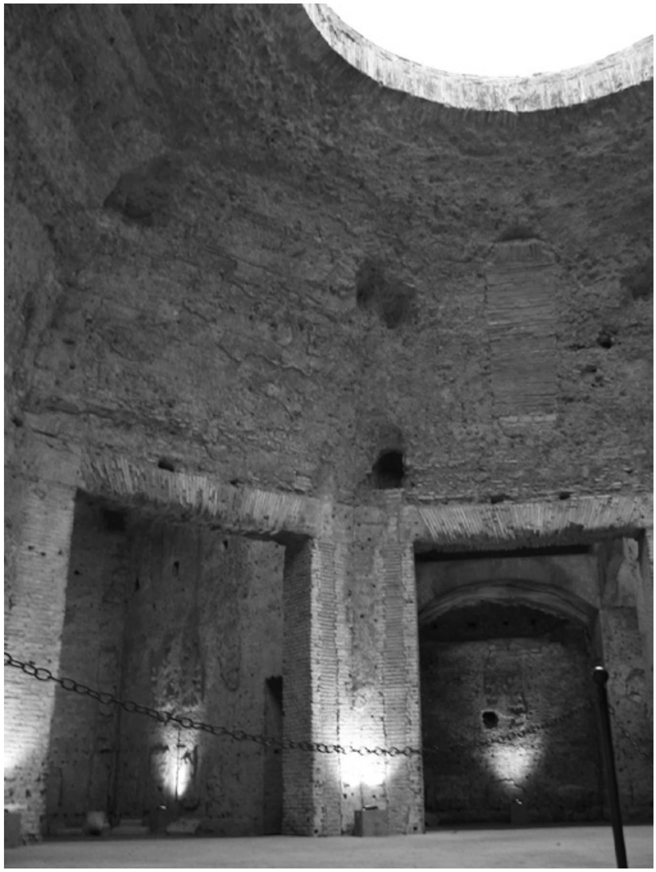


Figure 4.1 View of the Octagonal Room, Domus Aurea. *Source*: R. Ulrich

revealing expansive volumes and infinite geometric perspectives (Ward-Perkins 1981; MacDonald 1982a: 38–41; Ball 2003: 219–229). Particularly notable in the design of the octagonal room is the emphasis on fragmented views and geometries, also characteristic of contemporary Fourth Style wall painting (see Chapter 18).

Experimentation in the redistribution of point load forces resulted in interior spaces of unparalleled lightness. Measuring 36 × 8.8 m, the Great Hall of Trajan's Markets is roofed by the largest surviving cross vault in the Roman world (MacDonald 1982a: 86–88; Figure 4.3). Perucchio and Brune's recent structural analysis of the hall (2008) reveals how the architects employed corbeled travertine blocks at the spring of the vault to reduce the span and lateral shear walls to counteract the thrust of the vault. Yet by hiding the support structure in the walls of the flanking rooms and creating an interior elevation pierced by the openings of doors on the ground floor and the arched openings on the second floor, Apollodorus not only masked the structural solidity

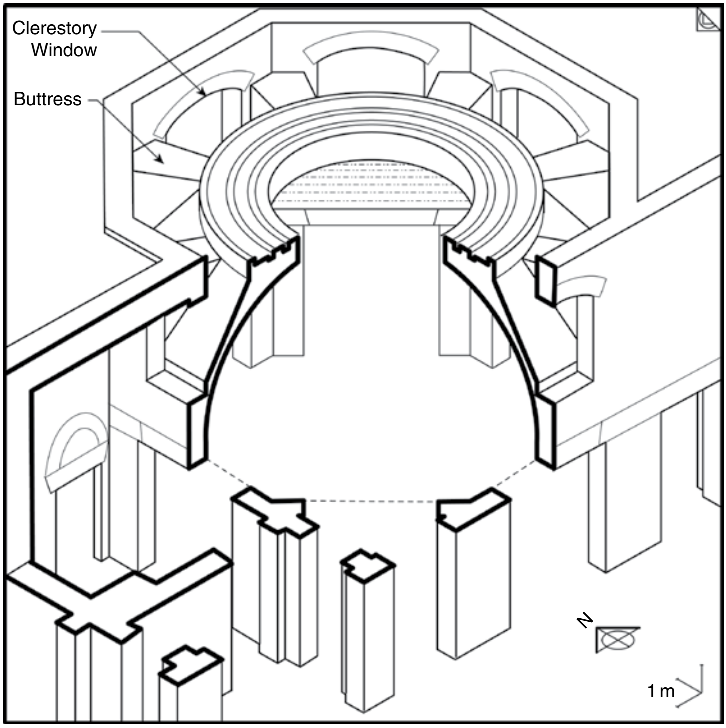


Figure 4.2 Axonometric drawing of the Octagonal Room, Domus Aurea. *Source*: Lancaster 2005a: fig. 130.

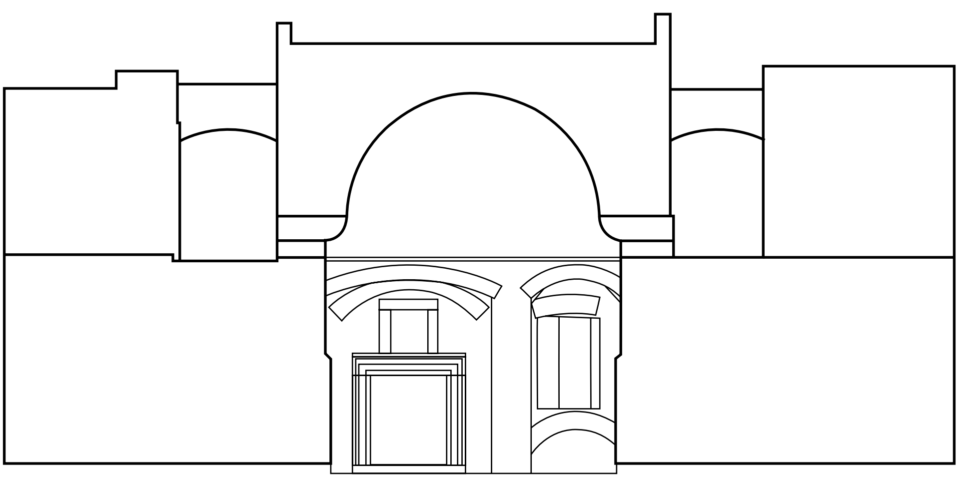


Figure 4.3 Section of Great Hall, Trajan's Markets. *Source*: D. Quenemoen after Perucchio and Brune 2008.

of the design, but also created the impression that fourteen corbeled travertine blocks carried the load. Seemingly suspended against the sky from the ground floor vantage point, they appear as the primary supporting structure of the building, providing a sense of airiness that scholars have often suggested was Apollodorus's nod to the billowing cloths that covered the bazaars of his Syrian homeland (MacDonald 1982a).

Greater consideration of the section in Roman design is also evident in the appearance of multi-story structures with non-congruent plans. Rather than distributing the load by vertically aligning walls, piers, and columns, architects and builders used brick ribs to direct the load of unsupported structures to supports below (Lancaster 2007). This structural solution first appeared in the Theater of Marcellus, but became widespread after the fire of 64 as a solution for rebuilding Rome atop the crumbled walls of the ruined city. Rather than clearing the debris or allowing existing walls to dictate the plan of new structures, builders experimented in the use of relieving arches to distribute loads, suspending the city over vast underground networks and prompting Pliny to compare Rome to an *urbs pensile* (*HN* 36.24). Similarly, when Trajanic builders added a semicircular latrine above the rectilinear rooms of the Forum of Caesar, they employed relieving arches to channel the load to travertine blocks, which then redistributed the load to the walls below via brick ribs constructed over the pre-existing barrel vaults (Lancaster 2000: 755–785).

Quickly this structural solution appeared in large multi-story works and yielded complicated sectional changes as the plan of upper stories was no longer required to follow the plan below. In the Colosseum, travertine ribs within the concrete vaults directed the load of upper story walls to walls below (Lancaster 2007: 135). An even more elaborate execution is found in the construction of Trajan's Markets. Abandoning the symmetry and axiality characteristic of terraced structures to that point (i.e., the Sanctuary of Fortuna Primigenia at Praeneste), Apollodorus of Damascus terraced the slope of the Quirinal Hill with an organic, six-story composition that accommodated a range of commercial and administrative functions (MacDonald 1982a; Lancaster 2000: 762–763; Ungaro 2007). While much of the composition relied on stacking load-bearing walls, the use of relieving arches and brick ribbing in the vaults allowed for non-congruent plans in several areas of the design and was thus critical to achievement of the inorganic plan (Lancaster 2000: 763–764).

4. Columns and Concrete

While much has been said about innovative concrete forms, equally important to the history of design in this period are the classical orders. Though frequently relegated to a secondary status in the history of Roman architecture

during this period (MacDonald 1982a; Wilson Jones 2000b), the use of the orders flourished, and the carving of the ornament became quite elaborate under the influence of sculptors from Asia Minor (von Blanckenhagen 1940; Strong 1953; Heilmeyer 1970; Leon 1971). More importantly, architects looked to the classical orders as a means of enhancing the key design interests of the period: the volumetric experience of space and the blurring of the distinction between artifice and reality. Columnar projections supporting ressauts frequently adorned both interior and exterior wall elevations (e.g., Forum Transitorium, the Aula Regia in the Domus Flavia, and the Library of Hadrian in Athens), transforming once planar surfaces into sculptured forms. Likewise, the more intricate and deeply carved sculpture cast shadows that enhanced the volumetric complexity of facades and interior spaces.

The orders assumed a particularly prominent role in the experience of concrete spaces, as architects explored how the use of traditionally load-bearing columns in concrete structures altered the relationship between surface and structure, artifice and reality. During the Augustan period, Vitruvius had argued for structural readability, a one-to-one relationship between decoration and structure, when he urged that marble architectural sculpture should mimic the design of wooden prototypes (*De Arch.* 4.2.5) and that Roman painting should replicate structural forms (*De Arch.* 7.5.4). However illusive, decoration was to remain true to structural principles and not function as an autonomous system, governed by its own rules (see Chapter 22). The architecture of the late first century–early second century CE exploited the gap between surface and structure, exploring how concrete liberated the classical orders from their structural function, allowing three-dimensional classical forms to become an illusive, decorative medium. For example, the giant order – a single order spanning multiple stories – had been used to support the wooden roofs of basilicas since the republican period (e.g., the late second-century BCE basilica at Pompeii and late first-century BCE basilica at Fanum; Vitr. *De Arch.* 5.1.6–10), but during the late first century, it became a purely decorative element, enhancing the verticality of the great cross-vaulted *frigidaria* of the imperial baths, even as the columns were positioned at the springing of the vaults to give the appearance of playing a structural role (Wilson Jones 2000b: 117).

The illusive complexity achieved in the combination of concrete and columns in Trajan's Markets, the Pantheon, and Hadrian's Villa underpins their iconic status in the history of Roman architecture. While the revealed brick facades of the Markets of Trajan are notably austere in their surface ornamentation, the facade of the Great Hemicycle is an exception (Figure 4.4). The preserved two stories of an initially three-story facade follow a symmetrical system of organization and employ a classical veneer of applied orders. The proportions of the two-story facade are 8:7. On the ground floor, 13 openings of equal size and spacing give access to shallow *tabernae* as well as to two staircases that lead



Figure 4.4 View of the Facade of the Great Hemicycle, Trajan's Markets. *Source*: C. Quenemoen.

to the second floor. On the second story, a series of arcaded windows duplicates the number of openings below, with every other one vertically aligned with the doorway below. Tuscan pilasters, molded from brick with travertine bases and capitals, frame each window and support raking pediments that alternate with pediments and lunettes and organize the facade in recurring groups of three.

Within the history of Roman curvilinear facades, the articulation of the Great Hemicycle is quite distinct. The flatness of the facade, reduced scale of the second story, and the broken pediments contrast sharply with the engaged orders in high relief employed in the hemicycles of Roman villas (Zarmakoupi 2005) and the isometric, multi-story colonnades that articulated the interior elevation of the Forum of Trajan's hemicycles, which it mirrors. The use of a second-story arcade at a reduced scale and framed by pilasters takes its cue from city gates, such as the Augustan era three-story Porta Palatina in Turin (Papotti 2003), the two-story Porta Praetoria at Aosta, and to a lesser extent the contemporary three-story Porta dei Leoni at Verona, which also employs both triangular and curvilinear pediments. The use of broken pediments is not part of that tradition however, more commonly associated with eastern architecture, such as the Sebasteion at Aphrodisias and the rock-cut tombs at Petra. More than a novelty whose origins may suggest Apollodorus's role in the

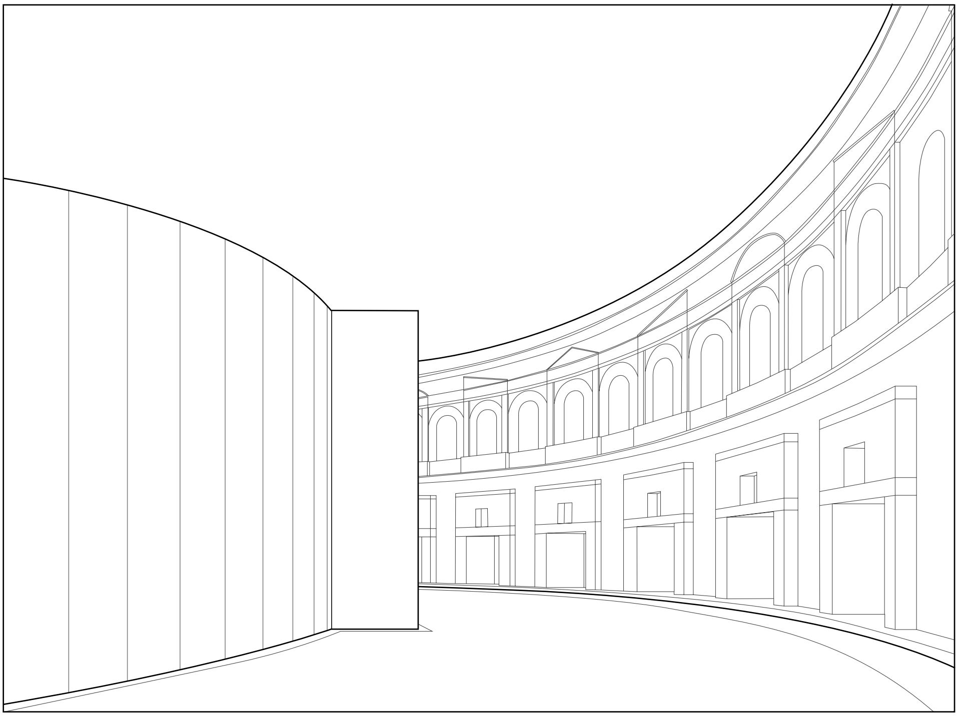


Figure 4.5 Perspective drawing of the street view of the Great Hemicycle in antiquity. *Source*: D. Quenemoen.

conception, these elements responded to a complex viewing context in order to shape the perception of the hemicycle's concave facade (Figure 4.5). Since the *exedra* wall of Trajan's Forum blocked full comprehension of the facade for the Roman viewer, it was always perceived in pieces at an oblique angle, not as a unified whole as it is today with the forum wall of tuff no longer present. Moreover, the degree of fragmentation of the facade shifted as the viewer moved along the road because the curve of the forum wall and of the market facade were not concentric. Within this context, the way in which the pattern of the pediments disrupts the repetition of arcades and doorways in favor of shifting patterns of three constructs finite views within a fragmented sequence, and the doubled rhythm of the second-story arcade brought the perception of the curve sharply into focus. This facade articulation was equally important for enhancing the view of the elevation. As with city gates, the low relief became pronounced only upon close viewing (Sear 1983: 161), and, when viewed from the steep vantage point created by the narrowness of the street, provided a sense of scale, making the hemicycle appear even grander than it was.

The classical orders likewise shaped the optical experience of the Pantheon (Figure 11.5c). Much has been said about how the architect manipulated viewer expectations by employing a conservative columnar facade as the

forecourt to the radical, domed interior. While the scale of the dome would have certainly wowed visitors, discerning the role that the porch played in heightening this experience depends largely on the interior design of the prior Agrippan and Domitianic buildings, which recent studies suggest were round and may have included concrete vaulting, albeit not a dome (Broucke 2009; Ziòłkowski 2009; Grüner 2009). Even more important for the experience of the interior space is the direct dialogue between the concrete structure and the classical system of decoration. While concrete shapes the space, it is the classical veneer – the columned niches of the bottom story and the reduced attic of pilasters – that animate it. Since the geometric pattern of the dome and attic is repeated 28 times and the foundation subdivided into 16 parts, vertical alignment of load-bearing structure – columns, attic pilasters, and coffer ribs – and of voids – niches and coffers – occurs only on the cardinal axes of the building. In between these points is a bewildering series of misalignments (Figure 4.6), which, as Wilson Jones argues, forced the eye to move in search of the vertical alignment and in the process to generate the sensation of the dome moving (Wilson Jones 2000b: 177–196). In effect, concrete liberated classical trabeated forms from their structural function. The genius of the Pantheon's design it that it acknowledges their superfluous status as structural support just as it asserts their necessity for the dynamism of the interior space.

The innovative concrete forms of Hadrian's Villa at Tivoli further employ the classical orders to articulate the complex geometries of the space. The villa seems to play with the decorative status of the classical orders. The caryatids lining the perimeter of the Canopus are freed literally from their loadbearing role in Agrippa's Pantheon (Broucke 2009) and figuratively from their historical associations as traitors relegated to a supporting architectural function (Vitr. *De Arch.* 1.1.5), and throughout the design of the villa are freestanding colonnades that do not support roofs, as in the arcade framing the semicircular end of the Canopus and the columnar screens of the "teatro marittimo" and the Accademia (Rakob 1961; MacDonald and Pinto 1995). On the one hand decorative, these colonnades nonetheless play a critical role in shaping the perception of the space, in both cases revealing in elevation the complex geometric rational of the plan otherwise obscured by the concrete elevation. While alternate proposals have been put forth to explain the generative process of the "teatro marittimo," it is clear that the 43-m diameter of the outer concrete wall served as the starting point for the plan (Jacobson 1986: 72–75; Wilson Jones 2000b: 93–94) and yielded not only an elegant tripartite plan of concentric elements (an outer ambulatory, moat, and central island villa), but also a series of subsidiary circles on the main axes. Aside from the exterior concrete ring wall, only the colonnades reveal in elevation the underlying geometric rationale. The openness of the ambulatory colonnade defines the circle, and the fragmented arcs of the island villa colonnades guide the eye to bring the subsidiary circles to completion,



Figure 4.6 Interior detail of the Pantheon. *Source*: C. Quenemoen.

transforming the academic exercise of planning with a ruler and compass into a dynamic spatial experience. Similarly, the belvedere of the Accademia includes concave columnar screens that reveal the geometric relation of subsidiary rooms on the cross-axes to the centrally designed plan (Jacobson 1986).

5. Conclusion

> [The emperor Hadrian] first banished and later put to death Apollodorus, the architect, who had built the various creations of Trajan in Rome: the forum, the odium, and the gymnasium. The reason assigned was that he had been guilty of some misdemeanor, but the true reason was that once when Trajan was consulting him on some point about the buildings he had said to Hadrian, who had interrupted with some remark: “Be off, and draw your gourds. You don’t understand any of these matters.” (It chanced that Hadrian at the time was pluming himself upon some such drawing.) (Dio 69.4; trans. Cary).

The authenticity of court intrigue aside, the passage with its combined emphasis on novelty and adherence to tradition encapsulates in many ways the nature of architecture in the period from Nero to Hadrian. On the one hand, it is fair to single out the Neronian age as initiating one of the most exciting periods in the history of architecture. A wealth of interdependent factors, from the urban exigencies of rebuilding on a large scale to the political needs of imperial patrons, from the peace and prosperity of a growing empire to the resulting supply of materials and labor from throughout the Mediterranean, created the conditions for change in Roman architectural process and form. In this context, Roman builders honed their craft, employing materials to optimize structural performance and developing construction techniques that increased efficiency. At the same time, Roman architects designed trabeated and vaulted structures of unprecedented scale, created dynamic interior spaces, and integrated columnar and concrete vocabulary in a complementary system. Yet, whether Romans themselves would consider these changes revolutionary is more open to debate as many of the materials had been used before and the structural systems and spatial forms had precedents in the Augustan age. Arguably, revolution was not so much about the forms themselves but a change in the nature of the process to achieve them – namely, a systematic approach to building that canonized approaches, uses of materials, constructional practices, and proportions – all of which made off-site production and procurement of materials more efficient and building on a larger scale easier.

In fact, the forms of Roman architecture remain little changed for the next 100 years. While Roman builders continued to refine vaulting techniques, the basic tenets of structure, construction, spatial organization, and design developed during this period served as the foundation for Roman architecture going forward. Emperors and architects turned their attention towards highlighting architecture within the urban landscape, setting monumental works in theatrical settings and creating dramatic streetscapes to celebrate the grandeur of the Antonines and Severans.

GUIDE TO FURTHER READING

The starting point for an overview of the aesthetic developments in concrete construction during this period remains MacDonald (1982a), while Ulrich (2007) contributes to our knowledge of the status of wood-framed building in this period. Lancaster's book (2005a) and numerous specialized articles are essential reading for acquiring a comprehensive understanding of structure, construction, and the assessment of Roman structural properties using modern technical analysis. Wilson Jones (2000b) provides a valuable overview of the Roman design process, with particular attention to architecture of this period. Specialized studies of buildings featured in

this chapter include Ball (2003) for the Domus Aurea; the edited volumes by Ungaro (2007) and Ungaro, Del Moro, and Vitti (2010) for the contribution of recent excavations and restorations to our knowledge of Trajan's Markets; the conference proceedings edited by Graßhoff, Heinzelmann, and Wäfler (2009) for the most recent thinking about the Pantheon; and MacDonald and Pinto (1995) for Hadrian's Villa. For provincial architecture in this period, Ward-Perkins (1981) provides a general overview while Boatwright (2000), Fraser (2006), and Opper (2008) offer focused discussions of the Hadrianic period.

CHAPTER FIVE

The Severan Period

Edmund V. Thomas

Introduction

The forty-two years between the accession of Septimius Severus in 193 and the death of his great-nephew Alexander Severus in 235 have been regarded as "the highpoint of Roman construction," but also a "mature phase" in which the time for experimentation was long past, apparently leaving little scope for modern scholarly discussion (DeLaine 1997: 10). By contrast, sculpture and other arts in this period are frequently seen as transitional, marking the dawn of so-called "late antiquity" (Huskinson 2005: 672–673; Newby 2007). But these terms and judgments lie in the eye of the beholder. In the first edition of the *Cambridge Ancient History* Gerhard Rodenwaldt focused on the fine arts, leaving barely a page for Severan architecture. He concluded drily that it presented "a consistent picture of a style, already molded in previous decades, pursuing its course and moving to its conclusion." For him the "impressiveness" of the Baths of Caracalla was deceptive and had "led to an overestimate of the achievement of the age" (Rodenwaldt 1939: 552), a sentiment echoed shortly afterwards by Herbert Bloch (Bloch 1947: 9; for the baths, see Chapter 16)).

From a technological point of view, the Severan period was not one of pioneering change. The vaults of the Baths of Caracalla show little innovation (DeLaine 1997: 157) and compare poorly with the advanced complex domical vaults at Hadrian's Villa. The use of iron tie-bars for structural reinforcement in the *palaestra* colonnades is barely advanced from the use

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of similar features in the Basilica Ulpia a century earlier (DeLaine 1990: 418–419). The solid brick ribs developed during Flavian and Trajanic architecture for structural reinforcement appeared here, for the last time in large-scale architecture, but now alongside a new form of lattice ribbing, which in several rooms of the baths helped divide the vaults enabling them to be built in stages (DeLaine 1997: 162; Lancaster 2005a: 98–102, with pl. XIII). The substantial buttresses still visible along the exterior of the cross-vaulted *frigidarium* were probably inherited from the Baths of Trajan (Lancaster 2005a: 137). Originality is apparent only in the inimitable lattice ceiling of copper or bronze under the great dome of the *cella solearis* (*caldarium*) (DeLaine 1987), a feature signaled also in antiquity (SHA, *Carac.* 9.4), and in the spherical pendentives which have been seen in two rooms of the outer precinct that have octagonal interiors within an external square (Rivoira (1921) 1925: 169–172; Robertson 1943: 252). Most vaults in the building consisted of the mid-imperial norm of horizontally laid *caementa*; but some barrel vaults of radially laid bricks, linking the piers in the *caldarium*, *frigidarium*, and *natatio*, suggest eastern influence, or at least the input of imported workers, because the technique is more widely found in the East. However, it is also found in Rome under Trajan and Hadrian and in the Flavian amphitheater at Pozzuoli, so such innovations may be better explained in terms of the progressive development of Roman concrete construction to provide solutions to particular problems (DeLaine 1997: 163–164; Lancaster 2005a: 98). Even the domes in the north wing of the West Baths at Jerash, set on squinches of cut stone (Kraeling 1938: 23; pl. VI, b), dated tentatively to the late Antonine period (Kraeling 1938: 54), may have resulted from adaptation of western ideas to locally available materials, giving rise to experimental techniques, rather than directly from indigenous Near Eastern traditions. Yet, if technologically the period was one of steady development and absorption of foreign influences, rather than major innovation, in other respects some tendencies of architectural presentation during the Antonine age were so intensified that it may be justified to see a new mode of architectural thinking. Above all, what characterizes Severan architecture in both Rome and the provinces is its theatrical aspect, the desire to dramatize the built surroundings as a living spectacle in space. While the desire for staging is certainly a feature of earlier Roman design, the buildings of the late second and early third centuries show a particular proliferation and perfection of theatrical techniques, from the selection of specific materials and forms to the overall arrangement of structures to enhance their dramatic context. These techniques are apparent in both the focus on certain elements of exterior facades and the articulation of interior space for dramatic impression.

1. Rome and Ostia

The reason for Rodenwaldt's negative assessment of the Baths of Caracalla was that in plan and elevation they differed little from Trajan's. Indeed, DeLaine's close study of the building confirms that the design process for the two complexes was very similar. Yet the Caracallan architect, if a single author can be surmised, had plenty of scope for creativity to produce dramatic spatial effects (DeLaine 1997: 46). His grand design is both more economical in its use of space and more effective in its presentation of volume (Figure 16.2). The potential of the three main rooms along the central, northeast–southwest axis of the inner bathing block, now completely separated from the outer ring of ancillary rooms, is achieved with increased impact, so that in a scheme of more systematic overall unity these foci stand out as concentrations of light and shadow. The *frigidarium* remains at the heart of the plan, but is designed to achieve enhanced scenic effects. Within, it is embellished by rows of freestanding, superimposed orders carrying broken or continuous entablatures, bringing architectural forms previously known only in exteriors, as in the Library of Hadrian at Athens, right into the building's innermost core. But it also looks outwards from its central location at the intersection of the building's two main axes, inviting dramatic vistas for the wandering eye: on one axis, across the three principal vaulted halls towards the *caldarium* and *natatio*, which at either end formed monumental and dramatic visual foci; on the other, through columnar screens enclosing statues of Hercules to twin *palaestrae* extending sideways from the central axis. At one end of the main axis, the squat, cruciform *caldarium* of Trajan's Baths has become a huge rotunda, almost as large as the Pantheon and innovative in its sense of space, crowned by a dome with four large scalloped windows in the drum. Now natural light radiated into the enclosed volume from all sides, negating the sense of interior containment produced by the concave forms of earlier architecture. The ambivalence here between circular and octagonal planning is closer in feel to the freestanding structures built in the late third or early fourth century, like the rotunda known as the Temple of Minerva Medica and the Mausoleum of Maxentius, than to the smaller baths of Hadrian's Villa, from which it was only partially derived. At the other end, the *natatio* is no longer the square, disconnected space of the Trajanic complex, but a spectacular culmination of the visual axis, its northeast wall decorated with three orders of columns of polychrome marble framing niches for statuary like the *scaenae frons* of a theater. The dramatic effect was intensified by strategic placement of remarkable works of monumental freestanding sculpture, organically inserted into the baths and in some cases – the Farnese Bull in the *palaestra* and colossal statues of Hercules in columnar screens at the edge of the *frigidarium* – enormous

prestige objects specially commissioned for the purpose (Zanker 1991: 46). All this suggests not just the continuation of an established style, but the result of new thinking about structure and planning in which visual impact was the principal consideration.

The contrast of the richly decorated sculptural volumes of the three main bathing halls of the Baths of Caracalla with the austere, linear facades of both the inner bathing block and the larger, surrounding complex is often remarked upon (e.g., Ward-Perkins 1981: 130–131). It corresponds to the tension that marks the fine arts of the period, between flat, dimensional surface and fully modeled forms with an illusion of depth (Huskinson 2005: 677). The same opposition of severe exterior and lavish interior is already noted in earlier works such as the Antonine Baths at Carthage (ca. 157–162), the largest bath building ever built in the provinces, where the exterior walls of stuccoed local sandstone from Cap Bon belie the inner marble decoration (see Chapter 16). Scholars have questioned whether such external austerity was the result of a relative economy or deliberately conceived to allow the splendor of the interior to create maximum surprise (Lézine 1968: 42), but the contrast is overstated. Recent explorations of the seaward sector of the Carthage baths show that the "maritime facade," already a design element of private villas, was here applied to public architecture as part of a continuous seafront culminating in the restructured harbor complex completed around 200 (Vérité 1998). The colonnaded aspect of the earlier harbor was intensified with the central island encircled by an Ionic portico and tetrastyle arch with composite capitals at the entrance from the causeway to the mainland to create the impression of an entrance screen to the city (Hurst 1994: 109–111). The resulting grand facade is characteristic of the Severan period, not only in public buildings, but also in private villa architecture, as demonstrated in the West by the Severan phases of the complexes at Blankenheim, Fliessem, Nennig, and Woodchester. In the Baths of Caracalla it is evident both in the external view of the two-story arcaded terrace on the northeast (the principal approach from the Via Appia), which is reminiscent of the *basis villae* of earlier Roman architecture, and in the southwest facade of the inner block on which long rows of uniform windows lead up to the projecting bulk of the *caldarium*. In their scenic frontages, sumptuous interiors, and gigantic effects, the buildings of this period, like their sculptures, can be considered to look forward as much as back, creating new compositional ideas.

In its realization of a massive project within four years, the Baths of Caracalla showed how far the age had outstripped even the Trajanic–Hadrianic period in its capacity for organizing labor and materials on a vast scale (DeLaine 1997: 197–201). Moreover, the baths were only the pinnacle of a substantial redevelopment of the capital and particularly its southeastern sector. Under Septimius Severus the imperial palace on the Palatine was considerably

extended by a massive engineering operation that involved the creation of terrace structures up to 22 m high on the southern slope of the hill to support the new extension known today as the Domus Severiana (Hoffmann and Wulf 2000). To the northwest this wing was linked to the existing palace by the stadium, and its main facade, facing the Circus Maximus to the southwest, directly continued that of the Domus Augustana. These projects can reasonably be assumed to be the catalyst for the so-called Flavian revival in architectural ornament, which is evident at Rome here and in the Baths of Caracalla (von Blanckenhagen 1940: 90–99), but also further afield, in the temple in honor of the Severan family at Lepcis Magna (Ward-Perkins 1993: 44–45, Figure 21). The substructures, now much robbed or restored, were almost completely built from brickwork with vaults of *opus caementicium* constructed on brick linings of *bipedales* covered with a layer of *bessales*; the barrel vaults have ladder and lattice ribs of bricks dividing them into sections (Lancaster 2005a: 104, 195). The extension included the so-called Terme Severiane, interpreted as baths because of the remains of under-floor heating systems and ventilation ducts, which seem to have replaced a Domitianic predecessor (Carettoni 1972), and a spacious stairway adjoining the apsidal rooms on the east, leading perhaps to pavilion buildings and a viewing terrace (Hoffmann and Wulf 2000: 295 and Figure 8). The immediate object of the prospect from here was the Septizodium, dedicated on Severus's return to Rome in 203. This ambitious and theatrical two-story columnar fountain structure of colored marble confronted those arriving in the city from the Via Appia and Via Ostiensis; similar buildings graced several cities in North Africa and the Near East from the late Antonine period (Lusnia 2004), but its particular name and decoration advertised Severus's African origins (Thomas 2007a). Over a century and a half later it was still considered a "nymphaeum of ambitious construction" (Amm. Marc. 15.7.3).

On the other side of the Palatine, the standing remains of the Temple and Atrium of Vesta also date to this period, and to the northeast the area of the palace oriented towards the Velia and the Colosseum also required high substructures. The latter area, beneath the Vigna Barberini, replaced a deteriorating terrace garden, which, after two fires in the last decades of the second century, had been razed to a few centimeters above the ground and buried in fill. The terrace was then given the rectangular form which is today clearly visible in the landscape and separated sharply from the Domus Augustana, its enormous foundation extending at least 3 m beyond the outline of the temple itself (Villedieu 1995a: 731, Figure 7). Brick stamps in the preparatory structures (Steinby 1974/1975: 42, 73 and 105), together with pottery and coin evidence, suggest that this vast temple was begun under Marcus Aurelius, continued by Commodus (under whom an *aureus* in honor of Jupiter Ultor possibly announced the temple), and completed by either Commodus or



Figure 5.1 The Arch of Septimius Severus, Forum Romanum. *Source*: E.V. Thomas.

Septimius Severus, before being overturned by Elagabalus and dedicated to the Syrian god Ba'al, then restored and re-dedicated by Alexander Severus (Villedieu 1995b: 36; Morel 1996: 204). The last-named emperor also left his mark on the Palatine by paving open spaces (*plateae*) with the distinctive combination of red and green porphyry (*opus Alexandrinum*) (SHA, *Alex. Sev.* 25.7), a new aesthetic that marked the rebuilt Curia of the late third century and later influenced the Cosmatesque interiors of medieval churches.

The dramatic possibilities in the Roman Forum itself were enhanced by the Arch of Severus, also dedicated in 203 (Figure 5.1). Its three-bay form not only replicated the other Parthian Arch, of Augustus, opposite, but developed the theatrical potential of its setting. The freestanding columns were now isolated on tall plinths; reliefs of Severus's Parthian War and the vanquished peoples covered all facades, the passageway, and even the column plinths; iconic divine images embellished the keystone modillions of all three archways; and dominating the structure was a vast, banner-like inscription in letters of gilded bronze across the attic, on top of which a chariot sculpture in gilded bronze representing Septimius was flanked by equestrian statues of his two sons.

The monumental image of Elagabalus's temple, known only from his coinage, atop a high terrace substructure reached by a grandiose stairway, was replicated in the massive remains on the western spur of the Quirinal. These are usually identified as Caracalla's Temple of Serapis on the basis of inscriptions

found near the temple, but its exceptional size suggests an identification with Severus's "super-big" temple of Hercules and Bacchus (Cass. Dio 77.16.3), or their Punic equivalents, Melqarth and Shadrapa (Santangeli Valenziani 1996; Lusnia, forthcoming). This is not the place to resolve the controversy, but, as the epigraphic evidence refers solely to Serapis and no evidence of Hercules and Bacchus appears in the area, it may be that the temple was known to Dio from its intended dedication by Severus, but was completed only under Caracalla and then dedicated to Serapis. At any rate, its layout of an almost square forecourt preceding the temple cella may owe something to Egyptian or Near Eastern architecture. The rear west wall dominated and was flanked by the ramps of a grandiose double stairway leading down to the Campus Martius, 70 feet below. From this temple, whose east facade, according to Palladio, uniquely had 12 columns, comes the monstrous fragment of entablature in the Colonna Gardens, almost 5 m high and 100 tons in weight, alleged to be "the largest block of marble in Rome" (Lanciani 1889: 241; Liljenstolpe 1996: 55). Its column shafts are estimated at 60 Roman feet (RF) (17.66 m) and its capitals over 8 RF (2.47 m), both well over the corresponding dimensions for the largest temple at Baalbek (Wilson Jones 2000b: 240 n. 46). It is natural to assume the influence of the latter on these grand designs. It too saw further embellishment under the Severans with the erection of a colossal "propylaea," raised on a high podium and approached by a towering frontal stair; a vast arched lintel, sometimes referred to as a "Syrian arch" (Thomas 2007b: 40–46, 62–66), loomed over the entry to an elaborate hexagonal forecourt (Figure 5.2).

Outside Rome, eastern architectural traditions can be surmised in the so-called Round Temple at Ostia because of its dimensions and unusual form, above all the large rectangular courtyard preceding the Pantheon-like cella with decastyle portico (Figure 5.3). The suggestion that this temple was largely due to the finance and direction of the Severan family (Meiggs 1973: 81–82) may be supported by the likely find there of colossal heads of Alexander Severus and Gordian III and the base of a large statue of Gordian's wife. The building is richly embellished with marble, which lines the seven large statue niches in the cella and those in the courtyard walls; in the decastyle pronaos *cipollino* columns are surmounted by Corinthian capitals of Luna marble by Asiatic workshops (Pensabene 1996). The dedication is unknown, but the temple was probably completed under Alexander Severus, by which time these workshops in Ostia were apparently employed only for imperial commission. Similar examples appear in the portico *in summa cavea* of the Colosseum, which is attributed to the restoration by the same emperor (Pensabene 1988a: 61).

The Round Temple is also important because it is the first large public building at Ostia, and one of the earliest in Italy, where there is substantial evidence for the reuse of architectural elements in the wall structures



Figure 5.2 The Propylaea at Baalbek. *Source*: E.V. Thomas.

(Pensabene 1996: 202–204). Fragments of colored marble slabs were inserted in the coarse black and white pavement mosaic of the courtyard; column drums, bases, and capitals of travertine apparently dismantled from a nearby public building were reused in the high podium of the cella (Pensabene 1996: Figures 16 and 17). At Rome, too, broken and burnt materials from buildings destroyed in the fire of 191, including marble, travertine, and tuff, appear in the rebuilt versions of the Vesta complex (Van Deman 1912: 422–423), where the absence of Severan stamps from the finds uncovered in the 1987–1996 excavations may confirm earlier opinions that the builders of this period relied heavily on reused bricks and tiles (Lugli 1957: 611–613; Scott 2009: 74).

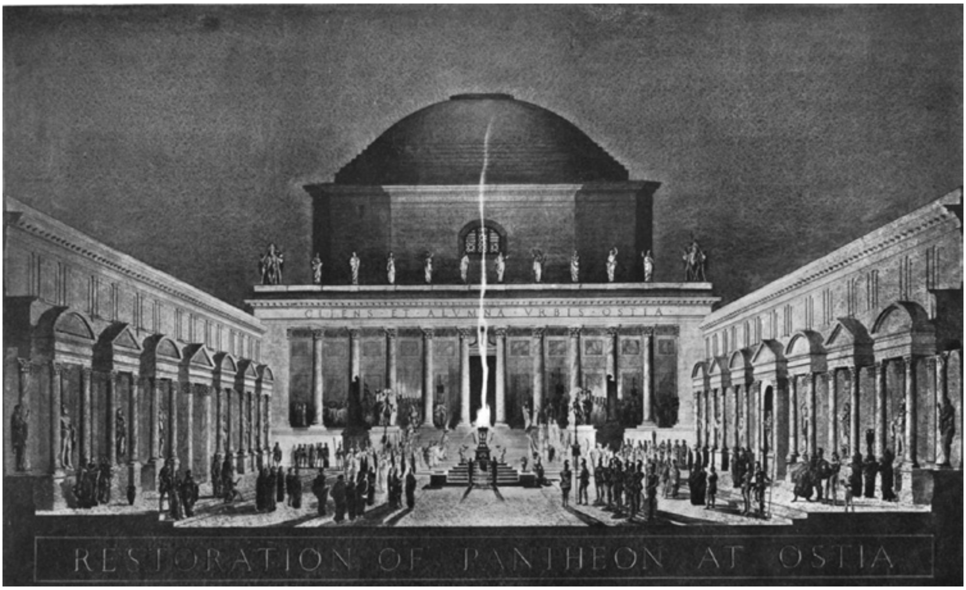


Figure 5.3 The "Round Temple" at Ostia. *Source*: Briggs 1930: frontispiece.

After the fire of 217 there were further economies in building materials and techniques. The restoration of the Colosseum saw a reduced use of travertine; blocks were fitted together without iron clamps or dowels; and the mortar in brick joints was unraked (Lancaster 1998b). In brick construction in Italy, the Severan period witnessed a general tendency to employ mortar joints of increased thickness, though not by as much as in the next centuries; the thickness of bricks was also less than in the first and early second centuries, though only fractionally so (Heres 1982). Bonding courses of *bipedales* in Italy were set at somewhat greater intervals than a century previously, and broken *bipedales* were introduced as facing bricks (Van Deman 1912: 423–424). These relative technological failings were masked by aesthetic conservatism. The facades of the Amphitheatrum Castrense at Rome and the restored theater at Ostia were traditional classical forms of two superimposed orders, carried out entirely in brick-faced concrete. In North Africa the amphitheater at El Djem (Thysdrus) produces a similar impression, built entirely from traditional large blocks of ashlar masonry, brought 30 miles from the coastal quarries of the Rejiche formation (Golvin 1988: 210).

2. Eastern and Western Provinces

Building in the western provinces was less prolific than in previous centuries, but recent work has highlighted some significant developments that suggest similar approaches to design to those followed at Rome. In northern Italy there

was a higher level of building activity (Bonzano 2004). Aquileia in particular enjoyed an architectural boom because of its new-found strategic importance. The east portico of the forum was rebuilt in local Aurisina limestone, with fluted columns mounted by composite capitals, and above the ornate entablature with its florid frieze was an attic story of plinths and slabs decorated with heads of Jupiter Ammon and Medusa and swags extended by *amorini* (Bertacchi 1994: 106–107, Figure 97). At the same time, the south side of the forum was also reconstructed, opening through more widely spaced columns and a central propylon onto a new basilica that emulated the Basilica Ulpia at Rome with two terminal apses and marble paving (Bertacchi 1994: 109; Gros 1996a: 257).

In Gaul, the fora at Bordeaux (Burdigala), Reims (Durocortorum), and Amiens (Samarobriva) saw renewed development (Étienne 1962; Bayard and Massy 1984; Neiss 1984). At Bordeaux the contemporary taste for grandeur is evident in the large amphitheater in *opus mixtum* with wooden seats and stairs, one of the last examples of this type (Golvin 1988: 213–214), and in the baroque exuberance of the mysterious "Piliers de Tutelle," an enclosure formed by 24 Corinthian columns supporting an arcade of pilasters embellished with female figures and vases in relief (Grenier 1958: 434–439). On the frontier, the reality of possible invasion brought about construction of stone fortifications at Faimingen (Phoebiana) in Raetia to replace earlier enclosure walls of wood and earth with stone gates, a phenomenon replicated in several other frontier settlements, including Rottenburg am Neckar (Sumelocenna) and Bad Wimpfen in Baden Württemberg (Wilson and Creighton 1999: 20), along Hadrian's Wall in Britain, and at Bu Ngem in Libya (Welsby 1988). In the same period, the rebuilding of the Temple of Apollo Grannus at Faimingen in good-quality Jura limestone may have been connected with Caracalla's visit there in 212 and 213 (Weber 2000: 86), and the renovation of the theater at Canterbury in local Kentish Rag on a classical plan between 210 and 220 (Frere 1970) can be seen in the same light. The ambitions of this period in Britain are demonstrated by the enigmatic elliptical building at Chester (Mason 2000) and the monumental arch in London with its extravagant figural decoration (Hill, Millett, and Blagg 1980: 179–180).

In particular, the arches and gateways of provincial cities in the Severan Empire sometimes displayed the enhanced grandeur and adventurousness in design that was a hallmark of the recent imperial model at Rome. The Porte de Mars at Reims is an elongated version of this archetype, at 33 m the longest surviving arch of the Roman world, and 18 m high, with three equal openings framed by single three-quarter columns on pedestals; following the late-Antonine Porte Noire at Besançon with its mythological reliefs, the intermediate walls are sculpted with bearded gods in roundels, swags, winged Genii, images of the calendar, and, at the center of the coffered arch, the suckling of Romulus and Remus, representing almost an "apotheosis" of Rome, in place of the usual

imperial one (Stern 1962; Picard 1974; Lefèvre 1987). At Mainz, an arch erected by the sons of Dativius Victor, a decurion of the city of Nida-Heddernheim, was adorned with fully plastic reliefs including a seated pair of Jupiter and Juno on the keystone (Schoppa 1963: 20). Similarly scenic constructions of imperial ideology appeared further east. The three-bay arch dedicated at Pisidian Antioch in 212 by C. Iulius Aper mimicked the official version at Rome with reliefs of kneeling Parthians, winged Victories, and Genii. At Palmyra, the new Severan Arch was no mere street architecture, but a sophisticated structure of triangular plan, which, like a pivot, unified the different alignments of the main colonnaded street and the much wider approach road to the Temple of Bel. Its facades, with pedimented niches choreographed by Corinthian pilasters in a rich decorative context, assumed an illusionistic and theatrical function, which has been compared to Baroque stage designs (Gros 1996a: 92), but is understandable anyway within the context of ancient perspectival painting.

The greatest exception to the relative deceleration in architectural development in the western Empire was North Africa, whose cities benefited from increased prosperity at this time and many from elevation in civic status (Wilson 2007). This did not lead to major structural innovation, but did encourage extensive architectural enrichment in a style characteristic of the era. A good example is the proliferation of bathing complexes, many symmetrical in plan like imperial baths in Rome. Developments already seen in the Antonine era at Carthage, Djemila, and Timgad continued under the Severans with enlargements or renovations elsewhere, and many of the sumptuous mosaics in the Bardo Museum in Tunis come from these structures. Although the importance of the period for the architecture of baths in North Africa should not be overstated in relation to either the preceding or succeeding eras, many of the most important examples belong to this period. As at Rome, they are particularly marked by the centrality and spaciousness of the *frigidarium*: 125 m^2 in the Summer Baths at Thuburbo Maius and Madaura; 150 m^2 in the Hunting Baths at Lambaesis; 250 m^2 at Cherchel; 300 m^2 at Mactar; 330 m^2 at Sbeitla; and over 400 m^2 at the Large North Baths in Hippo Regius (Thébert 2003: 342–343). Although many are more modest structures, several show sophistication in architectural design that is paralleled in domestic buildings: octagonal rooms in the Memmian Baths at Bulla Regia; the airy colonnaded pool of the Baths of the Months at Thaenae; and the widespread use of curves in the small East Baths at Caesarea. The Large East Baths at Mactar (ca. 199) are planned around a *frigidarium* roofed by a central cross vault and two flanking barrel vaults; and, on either side of a covered *natatio*, two large *palaestrae* are each designed with a vast semicircular *exedra* and an arcade supported by piers with composite pilasters (Thébert 2003: 144) in the style seen in the second century at Athens and Verona (Spawforth and Walker 1985: 97; Frova and Cavalieri Manasse 2005: 184). The Memmian

Baths at Bulla Regia (ca. 220–240) had a sumptuous entrance portico with 16 arched openings preceded by a stairway, integrating the building with the street to provide both a point of public focus where people stopped, as evidenced by the games carved on the paving stones, and a grandiose facade (Broise and Thébert 1993; Thébert 2003: 441–442). The wall decoration established a hierarchy of space: the vestibule, *frigidarium*, and main heated rooms are decorated with marble revetment instead of painted plaster (Broise and Thébert 1993: 274, Figure 286).

Suggestive of both the ambition and the cultural mix of the period is the Temple of Caelestis (Tanit), Dougga (ca. 222–235). A peripteral temple in the Corinthian order with 11 frontal steps, constructed out of local limestone, is surrounded by a large, unpaved semicircular courtyard, perhaps originally planted; an outer semicircular portico of 24 columns hinted at the lunar crescent of Tanit; it was roofed by a series of small vaults and paved with a mosaic of white tesserae arranged in scales. The perceived magnitude of the achievement is reflected in the dedicatory inscription running along the curving entablature in the name of the benefactor, Q. Gabinius Rufus Felix. Intriguingly, the names of Roman provinces and cities from Africa and the East are inscribed on the cornice, statues or busts of which may have crowned the portico (Poinssot 1958: 42–44). The curvilinear architecture is representative of the novel geometric designs of North African workshops: the concrete vaults of the Hunting Baths at Lepcis Magna (Ward-Perkins and Toynbee 1949) and Large Baths at Thaenae are further examples.

As in the northwestern provinces, this image of architectural grandeur was highlighted by what has been called a “rash of honorific arches” celebrating the Severan family, more in a single period than anywhere else in the Empire and most of them civic or private benefactions (Wilson 2007: 307). Many are attested by inscription alone, but those with structural remains show a range of variants on classical architecture, including giant orders, ressauts, broken and segmental pediments, and columned niches. The single-bay arch of Severus at Haidra (195) has projecting pairs of columns and entablature on each side; at Tebessa (Theveste) a two-story four-way arch (*quadrifrons*) for Severus, Caracalla, Julia Domna, and Geta (214) has paired columns on all sides, projecting entablatures and medallions with divine busts; the center of the passage is roofed by a domical vault, and the upper part consists of four kiosk-like columnar formations with round-headed niches forming a cross around a central element. These arches should be seen in their urban context. The single-bay Arch of Caracalla at Djemila (Cuicul) (216), at the west entrance to the forum, was adorned with paired columns of colored marbles on two levels, the upper one gabled, the lower sheltering conch-headed niches for statues, and provided a scenic approach to the temple of



Figure 5.4 The *quadrifrons* arch at Lepcis Magna. *Source*: David Gunn, http://en.wikipedia.org/wiki/File:Leptis_Magna_Arch_of_Septimus_Severus.jpg

the Severan family, a tetrastyle prostyle work of ashlar masonry core and marble features raised on a high podium with imposing frontal stairway (Kähler 1939: 430, V.14b; MacDonald 1986: 10, 97). An arch of 203 replacing the Trajanic West Gate at Timgad was adorned with a giant order of columns with segmental pediments enclosing small columned niches. Among other arches, those at Volubilis (216–217), with relief decoration, and at Constantine (Cirta), with its lengthy inscriptions on the piers as well as the attic, stand out, accentuating the urban drama through their forms and positions.

Most theatrical of all was the great *quadrifrons* arch at Lepcis Magna (Figure 5.4), which stood at the junction of the main road from Carthage to Alexandria and the *cardo* leading to the Old Forum. This structure is

usually noted as a landmark in Roman sculpture for the reliefs of Proconnesian marble that sheathe the passageways, piers, and attic of a limestone structure possibly going back to the Trajanic period (Di Vita 1975; Newby 2007). The sculptures glorified the Parthian success of Septimius and the dynastic ambitions of the Severan family (McCann 1968; Strocka 1972; Newby 2007: 206–211). However, the architecture was just as compelling. Taking forward recent works such as the tetrapylon arch of Marcus Aurelius and Lucius Verus at Tripoli (Oea), with decorated pilasters and an inner octagonal dome rising from pendentives, the work not only displayed sumptuous architectural ornament in the pilasters decorated with plant scrolls, but an innovative design driven by the jutting broken pediments at the corners.

The *quadrifrons* at Lepcis was one of the first parts to be completed, in 203 or 205–206, of an enormous building project commissioned by Severus himself at his birth city, which constitutes the outstanding monument of the period and demonstrates the vitality of Roman architecture at the start of the third century. This gigantic program was partly influenced by the precedent of Antonine Carthage, where the use of Italian *opus mixtum* walling alongside the local technique of *opus africanum* has suggested that architects and workmen were imported directly from Rome (Lézine 1968: 38–42). Soon after the arch, the Great Nymphaeum was constructed at the end of the grand colonnaded street from the new Severan harbor, replacing an earlier scheme for a circular piazza, opposite the great curve of the *palaestrae* of the newly restored Hadrianic baths (Ward-Perkins 1993: 79, Figure 38). This grandiose composition, with superimposed orders of *cipollino* and red granite, freestanding on pedestals and arranged around a semicircular fountain basin, represented “a new decorative spirit” announced by triangular pediments at the sides and segmental pediment over the central intercolumniation (des Gagniers 1969: 148). In conception it owed something to the lavish displays of the Antonine period at Olympia and Athens; in detail and ornament the inspiration for the cushioned friezes and column drums with acanthus foliage lay in Asia Minor.

The coup de grâce was the great forum complex. Consisting of a colonnaded rectangle of 6,000 m^2, it was dominated at its west end by a massive octastyle temple on a podium dedicated to the ruling dynasty or to the Punic deities Shadrapa and Melqarth, and closed on the east by a judiciary basilica that emulated the imperial *fora* at Rome not only in form, as at Aquileia, but also in dimensions. This traditional tripartite scheme mirrored the capital’s Forum Augustum in the situation of the temple and that of Trajan in the two-apsed basilica. The temple also emulated the Flavian palace in Rome in its decorative column pedestals around 1.5 m high carved in Pentelic marble with representations of a gigantomachy, which supported



Figure 5.5 The Severan basilica at Lepcis Magna. *Source*: SashaCoachman, http://commons.wikimedia.org/wiki/File:Severan_Basilica.JPG

column shafts of red Aswan granite. The central space between temple and basilica was paved with Proconnesian marble, laid on a massive bed of concrete. And around this space the forum colonnades of *cipollino* columns with so-called Pergamene lotus-and-acanthus capitals supported arches, with Medusa heads in the spandrels echoing the imperial *fora* (Ward-Perkins 1993). Their curving profile broke the classical continuity between column and entablature (Gros 1996a: 112). Instead of resting on piers, as at Mactar and elsewhere, the arches now sprang from the classical column itself, a practice anticipated only perhaps in the temple at Cyzicus (Ashmole 1956: 185, pl. 36). The resulting arcade motif would characterize medieval architecture even up to Brunelleschi, leaving it for Alberti to restore the classical norm.

With its central nave 19 m wide and side aisles on two stories, culminating in curved apses at either end, the basilica extended almost 70 m and covered a surface area of 3,400 m^2 (Figure 5.5). An enormous inscription extending identically on both sides of the lower order of the nave, carried on granite columns, and repeated on the outer end walls, announced that the building had been begun and "mostly completed" by Severus and

completed by Caracalla in 216, over 10 years since the likely commencement of the project (Ward-Perkins 1993: 104). The apses were framed by pilasters with inhabited scrolls of Aphrodisias marble, carved by craftsmen of that school to embed images of Hercules/Melqarth and Bacchus/Shadrapa within the acanthus scrolls, and articulated by two superimposed orders of freestanding columns on pedestals supporting an entablature with ressauts. In two respects the apses enhanced the structural and spatial effect of the earlier Basilica Ulpia at Rome: first, they were framed by straight walls concealing their curvature from outside; second, the absence of an intermediate colonnade made each apse a direct continuation of the central rectangular space, so that the long axis was emphasized uninterruptedly by pairs of colossal columns on octagonal pedestals at the back of the apses inserted between the superimposed orders and supporting griffin protomes above their projecting entablatures (Ward-Perkins 1993: Figure 30; Di Vita *et al.* 1999: 116).

More remarkably still, if the hypothesis is correct that a second area as large as the first was intended to open east of the basilica (Di Vita 1982), this project would have been the most ambitious ever conceived for a provincial town. The basilica was approached from the east by an uncovered passage, paved with marble and 8.25 m wide, which led through an arched entrance onto the main colonnaded street. Along this corridor ranged 27 columns engaged against the basilica wall: freestanding and supporting an entablature with ressauts, with shafts of *cipollino* marble on individual pedestals and lotus-and-acanthus capitals. To the west, the irregular site between the forum portico and basilica wall was filled by a series of rooms of decreasing depth from west to east, with an *exedra* on the axis of the forum and temple assuring a visual continuity between the open space of the square and the internal space of the basilica. Such a composition has left clear traces of changes of mind (Ward-Perkins 1993: 106–107); but the mastery with which the massive basilica is integrated, overcoming irregularities of plan imposed by adjacent *insulae*, into a grandiose complex extending over 250 m, is undeniable. The outer walls of the forum, basilica, nymphaeum, and colonnaded street were of handsome ashlar masonry, presented with an elegant drafted finish. Other walls, including the outer wall of the basilica apses, were constructed in a concrete masonry typical of the period, the mixed facing laid in alternate bands of bricks and limestone blocks (Ward-Perkins 1993: 92–95). The use of the Roman foot in the principal dimensions – 200 RF for the width of the forum and 240 RF for several measurements, including the great colonnade – betrays the overall direction of Roman architects. But inscriptions on architectural elements and other decoration show the dominance of Asiatic craftsmen in executing the marbled splendor of the new Severan works.

3. Architectural Ornament and the "Marble Style"

For all the relative economy in structural materials that characterized this period, the use of marble for architectural ornament of temples and public buildings continued to be prolific. It was only after the middle of the third century that the market shrank, quarry production declined, and the numbers of experienced sculptors diminished. Even then marble stocks remained abundant, but reuse of older material became more convenient (Fant 1989: 152). The Romans had brought about a massive reorganization of the system of producing and marketing white marble, which was associated with the imperial ownership of the most important quarries from the reign of Tiberius onwards; their central administration facilitated a widespread "marble style" in architecture (Ward-Perkins 1951: 95; 1971: 145). These quarries were now producing on an unprecedented scale, introducing mass production and building up enormous stocks of prefabricated and standardized architectural elements and slabs for veneer, although, as with sculptural elements (Russell 2011: 136), these workshops must have *reacted* to consumer taste, as well as dictated it. By the turn of the third century, they had found a substantial market in Italy and provincial cities where public munificence was still one of the accepted responsibilities of the wealthy citizen. This market was dominated by Proconnesian marble, whose quarries had direct access to the sea and therefore a significant economic advantage over land-locked quarries like Docimium. But at the latter, too, production continued until around 260 (Waelkens 1982: 128).

At Rome, architectural ornament not only followed the revival of Flavian exuberance seen in the grandest imperial projects, but also showed the influence of the East, especially Asia Minor. The exotic Asiatic classicism of the Hadrianeum in Rome (ca. 140) found favor again in the colossal temple of the Quirinal; its cushion-like frieze is paralleled at Perge and Lepcis. In the theater at Ostia, restored by Severus and Caracalla, fragments of architectural ornament from the *scaenae frons* show similar Asiatic traits; in some cornices a thin line of dentils separates the *sima* from the corona (Pensabene 1972: pl. 8.3; 1996: 201–202).

In the provinces, a florid and less detailed style was generally favored, with the use of the drill producing effects of light and shade as sharper visual contrasts that supported the dramatic impression of the architecture. The prestigious imperial work at Lepcis set a marker in taste. Capitals of Proconnesian marble from the baths at Odessus are formally close to those from the Severan basilica, and palm capitals used at Lepcis occur there and at Marcianopolis (Ward-Perkins 1980: 55–56). Inhabited scrolls like those used at the entrance to the basilica apse at Lepcis appear in the theater at Scythopolis-Nysa (Beth

Shean) (Applebaum 1978); the capitals of the theater at Gortyn resemble those at Perge and Beth Shean (Montali 2006: 210–214). Such developments sometimes appeared largely cosmetic. The basilica at Ascalon in Palestine (110 × 37 m) was decorated with colossal pillars of Proconnesian marble in the form of Atlantes carrying Nikai on a globe, similar to work at Lepcis, "absorbing marble art without any serious attempt at creating an art of its own" (Fischer 1995; 2008: 508).

In Asia Minor, the acanthus decoration preferred in capitals, entablatures, and cornices can be seen to have evolved by the last two decades of the second century to a stage where it was composed of several more or less independent parts, of which the plain, raised surfaces are separated by deeply drilled channels (Vandeput 1997: 141, pls. 50.3–4, 51.2–3). The strong contrasts of light and shade achieved in this way are visible already in the Tetrapylon at Aphrodisias, which may be no earlier than late Antonine (Yegül 1986: 138). The large propylon at Cremna, of the late second century, has architectural ornament comparable to the Hadrianic architecture from which it had evolved, but with greater impact because of the widespread use of the drill in place of the chisel (Mitchell 1995: 115). Not surprisingly, theater architecture was the most common outlet for such dramatic ornament. From the last quarter of the second century the theaters at Termessus, Sagalassus, Nysa, and Cibyra are all characterized by ornament of this style. The proscenium at Hierapolis (211/212), with niches framed by conches and spirally fluted columns, is a richer expression of the already exuberant ornament of the *scaenae frons* at Sagalassus (D'Andria 1987; Vandeput 1997: 217–218). The elegance of spirally fluted columns, already a feature of late Antonine work at Aphrodisias and Termessus, met the desire for elaborate architectural frames and was extended to other types of scenic display such as the "Marble Court" of the gymnasium at Sardis (211/212 see Chapter 16). It was also favored in theaters in the West, at Sabratha and Segóbriga (Almagro Basch and Almagro Gorbea 1982: 34). The shell-headed niches seen at Hierapolis were a decorative fashion of the time, corresponding to the taste for richer ornamentation, a rhetoric of display found, for example, in the propylon at Cremna and the late Antonine "Building M" at Side.

The extent of the marble trade in dictating architectural taste is above all demonstrated by the variety of grandiose fountain buildings across Asia Minor and the Near East, matching those at Rome and Lepcis and in western towns like Ostia, where apsidal *nymphaea* were now a fact of life (Calza 1953: 158–160). At Perge, in Pamphylia, an elaborate nymphaeum served as a gateway to the acropolis; its facade consisted of projecting spirally fluted columns with composite capitals and other columns of colored marble or grey granite, and the deep-relief architectural ornament included pediments with conch-blowing



Figure 5.6 Nymphaeum at Perge. *Source*: E.V. Thomas.

tritons and water spouts in the form of masks (Mansel 1975a: 83–92; Figure 5.6). The remains of a dedication by Aurelius Seilanus Neonianus marked the completion of this baroque structure. The redevelopment of the southern part of the town with an additional agora (Abbasoğlu 2001: 183; Mansel 1975a: 61, Figure 14, 65–75) and enlargement of the South Baths was marked by a lavish propylon to the baths nearly 7 m high with statuary of benefactors, one wearing an elaborate necklace like Palmyrene sculpture (Mansel 1975a: 71–75). Beside it, a nymphaeum dedicated to Artemis Pergaia had a vaulted cult room flanked by two levels of columned niches containing colossal statues of Severus and Iulia Domna and a dedication to the imperial couple and their sons (199–205) (Mansel 1975a: 65–71, Figures 25–26; 1975b: 367–369). The marble architectural ornament included spirally fluted columns of colored marble, figured Corinthian capitals, cushion-like friezes with tendril ornament, and entablatures carved with reliefs of Ganymede on the soffits between figures of Helios and Selene and of a silenus on a donkey between Pan and Eros on a billy goat; the pediments included sculptures of the Three Graces. The nymphaeum at Selge, a rich aedicular design in two stories of the Corinthian order, with perhaps alternation of pediments as commonly elsewhere, is one of the few buildings at that site to employ marble instead of the local sandstone. Its architectural ornament fits better the end of the second or early third century than the early Antonine period proposed by



Figure 5.7 Nymphaeum at Umm Qais (Gadara). *Source*: E.V. Thomas.

the excavators (Machatschek and Schwarz 1981; Yegül 1984: 650–651); and the form is mirrored by the imposing two-story structure with statuary depicted on a Severan coin from Hadrianopolis. At Laodiceia, a rectilinear fountain building of poros limestone was embellished around the beginning of the third century with marble revetment, with reliefs of Ganymede and the eagle and Theseus and the Minotaur (des Gagniers 1969: 124, n. 5, 198–201, pls. LXIX–LXX). The vogue for such structures continued into the second half of the third century, as at Side.

In the Near East the eloquence of the semicircular fountain building, ornamented with marble decoration and sculpture, is evident in the Decapolis cities. Simpler Antonine examples appeared at Bosra and Scythopolis-Nysa (Segal 1997: 55–60), and at Umm Qais (Gadara) a facade-nymphaeum was dedicated in the later second century by a local magistrate (Figure 5.7) at the junction of the main streets. Its semicircular *exedra* basin was ringed by a wall with niches for statues, faced with marble revetment and architectural ornament including interlaced ivy leaves and acorns, and flanked by two aedicular wings with colossal orders on pedestals of imported marble (Savage, Zamora, and Keller 2005: 529–530). At Jerash, a huge *exedra*, flanked by rectilinear wings, was roofed by a semi-dome of mortared rubble and faced by two stories of seven niches with broken segmental and triangular pediments, spanned by a huge arch; situated on the main *cardo*, the whole was fronted by a giant order

on pedestals interrupting the street-side colonnade and perhaps supporting a broken pediment in the building's facade (Browning 1982: 143–147; Segal 1997: 160–162). A similar construction at Pella can be reconstructed from a coin of the period (Smith 1985: 479, Figure 16). Finally, the elaborate structure at Amman (Philadelphia), forming five sides of an octagon, with three arched lintels and a giant order fronting two levels of statue niches, is by far the largest in the region, its facade over 70 m long, and stands over a stream on the western edge of the city; the date to the late second or early third century lacks stratigraphic confirmation (Waheeb and Zubi 1994; 1995: 238).

4. Changing Relations between East and West

In the Severan period, Roman architecture was as close to a uniform style as at any period of its history. The use of masonry walls faced in *opus mixtum* and the covering of surfaces with marble revetment in a canonical classical style, albeit sometimes modified by "baroque" or anti-classical tendencies, were both widely adopted as the most natural constructional solutions in western and eastern provinces alike. Similar formal design principles can be seen throughout the Empire in the creation of theatrical elements as part of the rhetoric of urban display. But there were also centrifugal pressures. The relationship between western and eastern influences was changing. The third century would see the gradual abandonment of the canonical western style of architectural ornament of the earlier period, the establishment of a new balance between East and West, and the development of local workshops away from the principal centers of cultural exchange, innovating in response to needs and often going back to ancient local models (Pensabene 1986: 361). In Africa, where the monumental infrastructure of the urban centers was less violently interrupted during the central decades of the third century than elsewhere, the older mausolea at Dougga and Medracen were adopted as models, and new architectural elements came not from Rome, but from Asia Minor, with a simplified version of Corinthian capitals with smooth leaves frequently adopted. The beginnings of this process are evident in the employment of Asiatic elements in the forum and basilica at Lepcis, and it continued apace into the Tetrarchic period (Pensabene 1986: 298).

Economic and political changes meant that earlier places of influence like Ephesus and Pergamon ceased to see architectural development, despite the continued importance of the former as a staging post for troop movements during the eastern wars and the large numbers of Ephesians attaining senatorial rank in the first half of the third century. The exceptions prove the rule. The so-called *macellum* at the northern end of the city center of Ephesus may have been a new center of the imperial cult, situated on a rise 30 m high west

of the stadium (Scherrer 1995: 15). At Pergamon, the thermal rotunda at the southeast corner of the Asclepieion emulated the Hadrianic temple beside it with a diameter of 27 m, but was also embellished by lobes, suggesting the direction in which architecture was moving (Radt 1999: 237–238).

In the eastern Empire, an *opus mixtum* technique with brick bonding courses laid at varying intervals between bands of rubblework with small stone facing became more common, especially in structures associated with the ruling power. The Severan warehouse at Tomis in Lower Moesia followed in this respect second-century examples at Odessus and Serdica, and similar walls can be seen in the Baths-Gymnasium at Sardis, the Caracallan baths at Ankara, and the city walls at Nicaea (Dodge 1987: 108). In Greece and Asia Minor, walls of brick-faced concrete with bonding courses of *bipedales* followed practice familiar in the West. At Dura Europos, the walls of the four baths at E3, A5, C3, and M7 – the former two for military use and the latter two shared with the civilian population – were made entirely from fired brick and their vaults from *opus caementicium*. Bath E3 is confidently dated to ca. 210–215, and the similarity of their design and construction techniques suggests that the others were contemporary with it (Rostovtzeff *et al.* 1936: 76 no. 630, 102). The new techniques were apparently introduced by units of the Fourth Legions Cyrenaica and Scythica, which had been involved in brick production at Zeugma and were transferred to Dura before 210, although it is possible that mudbrick techniques in earlier buildings at Assur and Seleucia on the Tigris had some influence. But otherwise fired brick occurs at Dura only in the upper surface of the seats of the cult theater of the temple of Artemis Nanaia (ca. 214) and in the vaults supporting the seating structures (Cumont 1926: 187; Rowell 1932: 32). Vaults of mortared rubble, however, were more widely used in the Near East during this period and are attested at Bosra, Jerash, and Antioch, as well as the slightly later Philippopolis.

Yet if the use of brick for wall construction was influenced by Rome, the employment of pitched bricks for vaulting in Greece and, especially, Asia Minor was more independent of metropolitan influence. It has been interpreted as the result of a lack of adequate materials for *opus caementicium* (Dodge 1987: 113), as local builders tried to emulate western forms. Such techniques, unprecedented in the Roman West or earlier Greece or Asia Minor, became more frequent in the early third century. Thus in the substructures of the basilica at Aspendus, brick barrel vaults spring from a projecting course of large stone blocks on side walls of mortared rubble. The first 18 courses are laid radially along either side, following the usual practice of Asia Minor (Ward-Perkins 1981: 275–277), but the crown consists of bricks pitched across the line of the vault. The same technique is found at Rhodiapolis in Lycia (Bayburtluoğlu n.d.: 16–17) and in houses on the slopes of the Bülbüldağ at Ephesus (Cowan 1977: 65; Ward-Perkins 1981: 453). Brick

vaults also occur in the baths at Aspendus. The technique appears at Ctesiphon and in Syria and would later become common at Constantinople, as in St Sophia and the Great Palace, but in the West the use of pitched bricks remained unknown until the reign of Honorius. If the use of fired brick was at first influenced by Rome, it soon took a local eastern form that anticipated Byzantine architecture. There was a parallel development of constructional expedients in the western Empire, especially in terracotta vaulting techniques. Regular *opus mixtum* was the dominant technique, as in the Cluny Baths at Paris and the new Gallo-Roman sanctuary of "Bois l'Abbé" at Eu (Seine-Maritime) (Bouet and Saragoza 2007; Mangard 2008). But hollow box tiles were used in barrel vaults in the legionary baths at Chester and the Great Baths at Bath, and vaulting tubes were employed widely across North Africa and in forts in Britain (Lancaster 2008: 275–277; See Chapter 9.20).

When Philip the Arab erected his new buildings at Philippopolis in the 240s, he looked not only to western ideas, as Severus had done at Lepcis, but also to eastern forms. The regular street plan of his new city corresponded to the orthogonal schema of late republican and Augustan Italy, in the best tradition (Freyberger 1992: 295). The baths corresponded to the imperial archetype in the enormous dimensions of their rooms, and the stucco and marble revetments of the walls contributed in a crude way to the prestigious impression of the building. The South Baths present a clearly "western" design similar in plan to the baths of Herod's "winter palace" at Jericho. An octastyle portico fronts an octagonal *apodyterium* within a square with round niches at the corners, roofed by a domical vault 30 feet square with central oculus and octagonal dome 45 feet in diameter of "daringly shallow pitch" using local light volcanic materials (Ward-Perkins 1981: 345–346, Figure 224). The barrel-vaulted and cross-vaulted halls are approached by a wide vaulted passageway; the rubble walls are dressed with carefully worked blocks of basalt; the vault was faced with stucco; and a light volcanic ash was used as a bonding material, as in the South and Central Baths at Bosra and for the nymphaeum at Jerash (Ward-Perkins 1981: 338–339, Figure 219). A new hexastyle temple had Attic bases and canonical Corinthian capitals of Asiatic type (Freyberger 1992: 301–304), typical of the normative tendencies at Rome and in the Empire during the second and third centuries (Heilmeyer 1970: 167–168; Ward-Perkins 1980: 52–54; Freyberger 1990: 125).

But Philip's buildings also harked back to ancient local traditions of stone construction and architectural ornament, embodied at cities like Petra, Bosra, and Palmyra. Many decorative forms followed the architectural decoration of early imperial buildings of the Djebel el-Arab (Freyberger 1992: 295). The half-columns on the outer sides of the city gates had regionalist and archaizing forms: on the South Gate, "Nabataean horn capitals" (Segal 1988: Figure 170), and on the East Gate, Corinthianizing capitals of a type that had not been

used since the late first century, in the "Nabataean Arch" at Bosra and the south temple at Seeia. The basilica, on the other hand, looked forward. Part of a larger complex, this large, timber-roofed hall, well lit by eight windows in the north and south walls, entered from a high, vaulted passageway in the west facade with a colonnaded forecourt, and culminating in an apse with a half-dome of concrete (Segal 1988: 57), resembles nothing so much as the ceremonial audience halls of Late Antiquity, above all the Basilica of Constantine at Trier.

GUIDE TO FURTHER READING

The most convenient general introduction to architecture of the Severan period at Rome remains Ward-Perkins (1981); but Lusnia (forthcoming) now offers detailed and up-to-date consideration of the impact of this period on the architecture and urban development of the capital, while DeLaine (1997) provides not only in-depth discussion of an individual building but also important methodological considerations on the logistics of large-scale building projects. There is currently no general discussion of Severan architecture in the provinces in English, but Gros and Torelli (2010) provide a good general discussion in Italian with particular attention to social historical considerations. Sections on individual regions of the Empire can be found in Ward-Perkins (1981), but without chronological differentiation. The region best considered as a whole for the Severan period is North Africa, for which Wilson (2007) offers a synthesis of urban development and Ward-Perkins (1993) detailed discussion of its most important single project, at Lepcis Magna. For Asia Minor, Yegül (1986) presents an archaeological evaluation of one important building at Sardis. For the Near East, Segal (1997) presents a clear survey of public building types. Wilson and Creighton (1999) is a valuable synthesis of recent work in Germany, much of which relates to this period, and Blagg (2002) collects architectural evidence for the era in Britain.

CHAPTER SIX

The Architecture of Tetrarchy

Emanuel Mayer

Introduction

The reign of Diocletian and his three co-emperors was a watershed in Roman history. It transformed the Empire politically and culturally, and these transformations are reflected in the history of Roman architecture. The 50 years between the end of the Severan dynasty and Diocletian's Tetrarchy had been a period of enormous military and political turmoil. The Empire was now threatened on all its frontiers, which meant that a single emperor could no longer command all imperial armies. This was an invitation for usurpers to claim the purple and resulted in seemingly endless civil wars. In order to break the cycle of usurpations and to provide adequate military protection on every frontier, Diocletian increased the number of emperors. Sharing power between two emperors was not a new idea. Already Marcus Aurelius had ruled together with his adoptive brother Lucius Verus, and similar arrangements had existed in the third century. But Diocletian formalized the system. He chose an unrelated co-emperor Maximianus, who was to rule the western half of the Empire. Later, Diocletian doubled the number of emperors by giving each senior emperor (*Augustus*) a junior partner, who held the rank of a *Caesar*. These two junior emperors were in charge of defending the frontier. The two *Augusti* stayed at a distance and commanded the reserves. After 20 years, the *Augusti* were to retire, at which point, the *Caesares* were to be promoted to *Augusti* and could appoint new *Caesares*.

Unsurprisingly, this system collapsed. But the Tetrarchs, nonetheless, profoundly transformed the Roman world. First, a system of multiple emperors

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and imperial ranks had been established. Second, Rome had lost its role as a functional capital. Unlike previous emperors on campaign, the Tetrarchs built new capital cities, which Latin panegyrists referred to as *sedes imperii* or seats of empire. This put an end to the old political system that portrayed the Empire as a restored republic, which was closely tied to the cultural and political traditions of the city of Rome. Tetrarchy made it possible to think of a permanent imperial court outside Rome and, ultimately, of building a New Rome on the Bosphorus. Without the Tetrarchs, there would have been no Constantinople and possibly no Eastern Roman Empire. The institution of Tetrarchy had many other profound cultural and political consequences. But in the context of Roman architecture two developments stand out: first, the development of a new imperial architecture, which favored well-lit audience halls and paved the way for many new building types of Late Antiquity. And second, the spreading of imperial architecture beyond Rome, which, for the period under discussion, forces us to re-conceptualize notions of center and periphery in the Roman world.

1. Rome and Romans outside Rome

Between the institution of the Principate under Augustus and that of Tetrarchy, almost all emperors focused their building activities on the city of Rome, where they built *fora*, temples, and *thermae* in a specifically metropolitan style. Outside the capital, building activities were also supported through imperial funds, especially for building infrastructure and to reconstruct cities after natural disasters. But the design and the construction of such imperially funded projects outside Rome was typically left to locals. As a result, Roman metropolitan architecture only rarely spread to the provinces through direct imperial intervention. When communities or individuals decided to copy the architectural style, or even specific buildings, of the capital, they did do so on their own initiative, as, for instance, with a forum in Mérida, which copied that of Augustus (Panzram 2011). This changed with Diocletian's decision to abandon Rome as the only permanent imperial residence and to establish new residence cities as permanent seats of imperial presence and power. Cities like Milan and Trier in the West, Sirmium and Thessaloniki on the Balkans, and Nicomedia and Antioch in the East received palaces, monumental baths, and circuses (Mayer 2002: 22–47; von Hesberg 2006; Wulf-Rheidt 2007: 59–64). These buildings were more than an expression of imperial presence and generosity. They also served as venues for consensus rituals through which the Tetrarchs interacted with "their" people, who were no longer the urban *plebs* of the city of Rome.

Indeed, the establishment of new *sedes imperii* reflected more than the need to multiply the number of emperors in response to concurrent military threats on the Rhine, Danube, and Euphrates frontiers. It also reflected a new idea of what it meant to be Roman outside the city of Rome. Diocletian and his three imperial colleagues came from modest provincial backgrounds and did not define their *romanitas* exclusively vis-à-vis the capital. This was a common attitude already in the early third century CE. As a result, Caracalla's decision to extend Roman citizenship to almost all free subjects of the Empire was not perceived as controversial or revolutionary.

The city of Rome, as the fountainhead of the Empire, remained of tantamount religious, ideological, and political importance (Behrwald 2009). But most provincials now considered themselves just as Roman as the Romans of Rome. Among others, the late fourth-century-CE Gallic orator Ausonius made this point repeatedly – for instance, in his "order of noble cities" (*ordo nobilium urbium*). In this poem, Ausonius assimilated many of the new *sedes imperii* to Rome, even though the city still held the pride of place among her peers (Mayer 2002: 22–27). Already under the Tetrarchs, orators had put some of the new *sedes imperii* in the same league as the city of Rome, typically within the context of a panegyric given in one of these cities (Mayer 2002: 29–42). This was in part rhetorical hyperbole, but it also reflected a new political and cultural reality: Rome was now wherever people felt Roman and politically wherever an emperor was. As a direct result, the Tetrarchs could sidetrack Rome, monumentalize their residence cities, and build large villas outside Italy. This, in turn, led to the spread of a new, specifically imperial architecture all over the Empire. The ways in which the cultural and political realities of Tetrarchy shaped the development of Roman architecture are, as a result, best studied by looking first at the new tetrarchic *sedes imperii* and villas outside Rome, before returning to the capital itself.

2. Rome away from Rome: New Imperial Cities

All tetrarchic residence cities have remained populous down to the present day, continuing to function as large towns or major cities. This makes geophysical survey impossible and impedes large-scale excavations. As a result, all six major *sedes imperii* are archaeologically understudied; there is almost no evidence for the tetrarchic buildings of Nicomedia, which served as Diocletian's main residence (Mayer 2002: 29–33). And there is none from Antioch, the second most important imperial residence of the East. More is known of fourth-century-CE Milan, the favorite residence of Maximian (Mayer 2002: 31–34; Haug 2012: 113–117). Significant remains survive of late Roman Trier, the most important imperial residence across the Alps (Mayer 2002:

34–38). On the Balkans, some late Roman remains of Sirmium have been linked to its late Roman palace (Jeremić 2009). And systematic excavations in Thessaloniki have uncovered a significant portion of Galerius's palace there (Mayer 2002: 43–47; Duval 2003; Stefanidou-Tiveriou 2009; Mentzos 2010; Hadjitryphonos 2011). In addition, a few texts provide us with ideologically charged views on the architecture of the new *sedes imperii*. But before turning to what we do know of individual buildings, it is important to stress what an enormous task the construction of a new residence city was. This in turn reflects on the political significance the Tetrarchs attached to their departure from Rome.

The best description of the overall impact of such an imperial building program is Lactantius's tendentious account of Diocletian's remodeling of his favorite residence city, Nicomedia. Lactantius was hostile to Diocletian, because the emperor was a persecutor of Christianity. But Lactantius is generally considered reliable on reporting basic facts and his description of Diocletian's building projects in Nicomedia aligns nicely with the archaeological record elsewhere:

> He built basilicas here and a circus there, here a mint, there a *fabrica* for military equipment, here a palace (*domus*) for his wife, there one for his daughter. Suddenly a large part of the city was destroyed. Everyone moved with their women and children, as if the city had been captured by enemies. And when everything was finished to the ruin of the provinces, he said: these [buildings] have not been done right, this should be rebuilt in a different manner. And again they had to be torn down and changed, possibly to fall again. (*De Mortibus Persecutorum* 7, 8–10)

Lactantius's polemical account stresses Diocletian's "lust for building" (*cupiditas aedificandi*), a topos in its own right and an attribute of bad emperors in Latin literature. But there is little doubt that establishing an imperial residence required demolishing pre-existing buildings and led to a major urban transformation. In Thessaloniki, older residential buildings were knocked down to make room for a palace (Mentzos 2010: 335). Also, the so-called Baths of Diocletian in Rome were built over an existing city quarter (Serlorenzi and Laurenti 2002: 36–47; Bauer 2012: 46–49). In Rome, this was nothing out of the ordinary. And like their predecessors, the Tetrarchs were keen to advertise that they had bought up the land for their baths in Rome and not simply requisitioned it (*CIL* 6.1130).

Yet in the new residence cities, more than one such building was erected, though the emperors still thought of their buildings as a gift to "their people." This was also the case with Diocletian's buildings in Nicomedia. The inscription (*CIL* 3.324) of the baths there claimed Diocletian had enlarged

them for his people (*populo suo*), just like the Tetrarchs had given the Baths of Diocletian to "their Romans" (*CIL* 6.1130: *Romanis suis*). This indicates that upgrading a city to a *sedes imperii* not only resulted in the construction of fortifications, mints, and weapon factories, which supplied the imperial army stationed there, but also a *domus* for the emperor and his close family members. It seems clear that the Tetrarchs also wanted to appear as benefactors of their new residence cities.

Imperial euergetism and a desire to enable large-scale political interaction between the emperor and the citizens of his residence city are reflected in two types of buildings that are attested in all tetrarchic *sedes imperii*: a circus and imperial baths. Of course, all cities that were turned into imperial residences had public baths before the emperor's arrival. But before the Tetrarchy, *thermae* inspired by imperial baths in Rome were only rarely constructed in the provinces (see also Chapter 16). Similarly, local baths in general were far smaller than their imperial counterparts. And even where they were not, as in the case of the so-called *Barbarathermen* in Trier, Constantius I felt compelled to add imperial *thermae* of his own. These so-called *Kaiserthermen* were not much larger than the *Barbarathermen*, but they stood out by their metropolitan Roman design and possibly décor (Krencker, Kruger, and Lehmann 1929).

3. "The Emperor Builds for his People": Baths and Circuses

In Rome, imperial baths were laid out following a standard plan with lofty halls, large windows allowing for ample natural light, colonnaded courtyards for Greek-style exercise, and a surrounding park, which sported multi-functional halls, lecture theaters, and, occasionally, libraries, built against the baths' circuit walls (Yegül 2010a: 101–132). Such extravagant baths and pleasure gardens were beyond the means of local communities and private benefactors. For instance, even the baths that Herodes Atticus constructed in Alexandria Troas (Yegül 2010a: 167–169) could not compare to imperial baths in the city of Rome, but the imperial baths in the Empire's new residence cities could. According to Procopius, the newly enlarged imperial baths of Nicomedia were so large that Justinian did not dare to restore them (*Aed.* 5 3 7). This is plausible in the light of the size of the Herculean Baths in Milan, likely built by Diocletian's co-emperor Maximianus. These were not quite as large as the Baths of Trajan or Caracalla, but still much larger than most earlier imperial *thermae* in the city of Rome (Mori 1990). Its tall main bath wing followed the ground plan of imperial baths in Rome, and while the whole complex lacked

a surrounding park, it sported a large *palaestra* covering the entire length of the baths' northern facade. There were also two smaller colonnaded gardens on the southern end of the complex. The baths were notable enough to be mentioned in Ausonius's "order of noble cities," among other imperial benefactions (*Ordo Nob. Urb.* 5.41):

> At Milan also are all things wonderful, abundant wealth, countless stately houses, men able, eloquent, and cheerfully disposed; besides, there is the grandeur of the site enlarged by a double wall, the Circus, her people's joy, the massy enclosed Theater with wedge-like blocks of seats, the temples, the imperial palace, the wealthy Mint, and the quarter renowned under the title of the Baths of Herculeus [*Herculeus* was the cognomen of Maximianus]; her colonnades all adorned with marble statuary, her walls piled like an earthen rampart round the city's edge: all these, as it were rivals in the vast masses of their workmanship, are passing grand; nor does the near neighborhood of Rome abase them. (trans. after Loeb)

We know at least the general dimensions of these other buildings erected by Maximian, and Ausonius seems to have been right. These buildings were similar to constructions in Rome, in particular the palace-circus complex. All new imperial residences had such a complex. This illustrates the public image that the Tetrarchs wanted to convey in their new *sedes imperii*. Just like the other three partly excavated tetrarchic palace-circus complexes, in Trier, Sirmium, and in Thessaloniki, the palace of Milan and its adjoining circus were built at the periphery of the city (Wulf-Rheidt 2007: Figure 2). Clearly, the Tetrarchs did not want to knock down large sections of their newly adopted cities, choosing instead to add new palace quarters on their edges. As the ground area of the best-known palace-circus complex in Thessaloniki covered at least 10 hectares and probably more, this makes sense. Unlike an imperial bath, a palace did not benefit the general public, and were an emperor to destroy existing houses and public buildings for his own *domus*, he risked incurring citizens' ill will. But the palace was more than an imperial *domus*. It also reflected the desire of the Tetrarchs to connect politically with the populations of their new residence cities.

4. Imperial Palaces and Political Communication

The construction of a palace quarter was the most important sign of imperial presence. It further assimilated a new *sedes imperii* to Rome herself. The combination of a palace and a circus for chariot racing mirrored the arrangement of the Roman imperial palace on the Palatium, the hill towering above the Circus Maximus. Tellingly, *palatium* and *palation* came to mean "palace" in both Latin and Greek, even though not all late-Roman *palatia* were palaces in an architectural sense, as we shall see later (Duval 1987; 1997; Mayer 2002:

40–42). With the emperors' departure from Rome, the *palatium*, and by extension Rome herself, was now wherever the emperor was. In Milan and other tetrarchic residences the emperor's palace towered, as it did in Rome, over the city's largest public space, the circus. Under the Empire, the circus was also its most important political arena (the classic study remains Veyne 1976). There, the emperor communicated with his people. This is why the imperial boxes in the Hippodrome in Constantinople, in the circus of Maxentius at Rome, and possibly in all tetrarchic circuses, were directly attached to the imperial palace (see below). The privileged relationship between the emperor and the *plebs urbana* of Rome was thus, at least in architectural terms, transferred to the Empire's new residence cities. This expressed the new prominence of the Tetrarchs' *sedes imperii* within the Empire at large. Constructing palaces and circuses broadcast in no uncertain terms that the emperors had every intention to stay. Previously, Roman emperors had avoided such political and architectural statements. Marcus Aurelius spent at least three years in Carnuntum while on campaign against the Marcomanni, but he neither built a palace nor public buildings that could compare to imperial architecture in Rome.

Unfortunately, none of the palace-circus complexes built by the Tetrarchs is well preserved, and hence they are understudied. This makes it difficult to compare this new imperial architecture to that of Rome. Yet, as in the case of imperial baths, a comparison in terms of size reveals their political significance. The size of the racetrack of the circuses of Milan, Sirmium, and Thessaloniki was about three quarters that of the Circus Maximus (Humphrey 1986: 613–622, 606–613, 625–631; and Chapter 15). This corresponds with the largest known circuses in the provinces, even though the seating capacity of the new imperial circuses probably exceeded that of even the largest provincial examples. While the badly preserved circuses of the new *sedes imperii* do not allow for any detailed architectural analysis, the better preserved remains of the palaces of Trier and Thessaloniki illustrate that the actual residences of the Tetrarchs could stand comparison to the old imperial palace on the Palatium in Rome, not just in terms of size but also in terms of architectural grandeur. And it included new types of buildings: light-flooded audience halls and centrally planned reception rooms.

5. Palace Architecture

The imperial palace of Thessaloniki extended almost half a kilometer from north to south and at least 100 m west of its attached circus (Figure 6.1). As in Trier, Milan, and Sirmium the circus was squeezed between *palatium* and

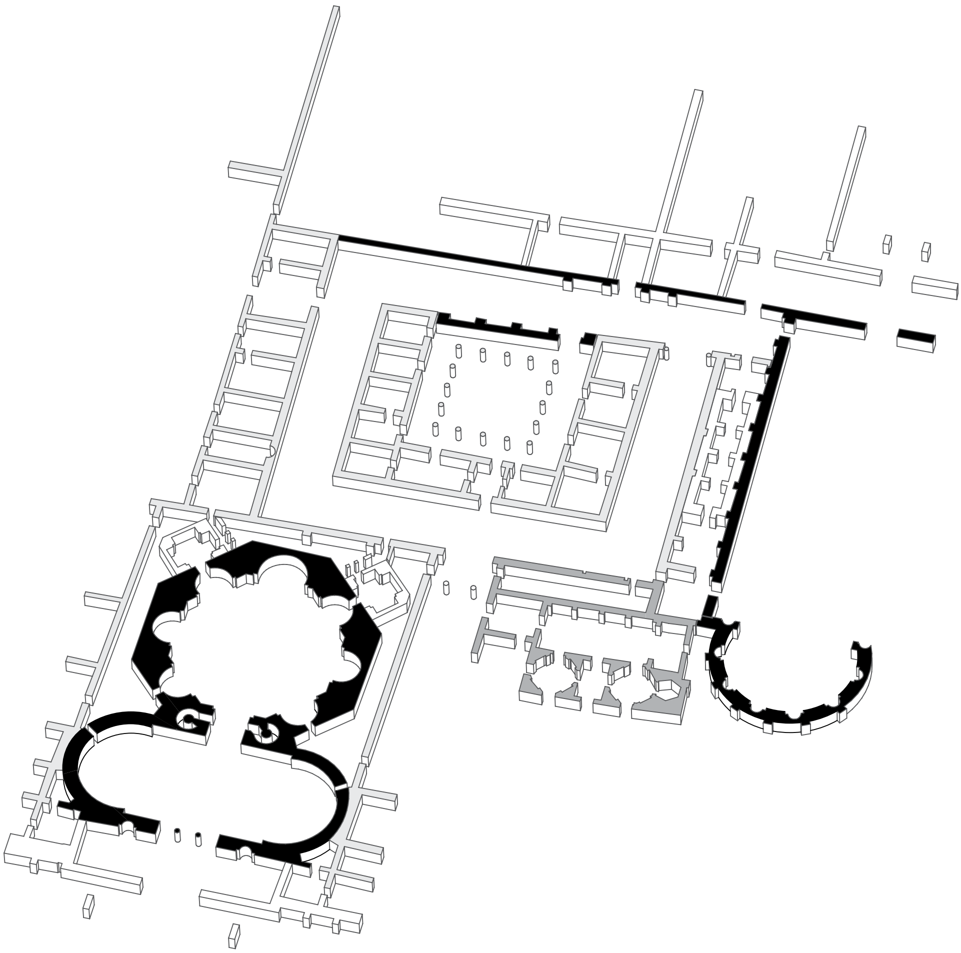


Figure 6.1 Thessaloniki, palace buildings on the Dimitrios Gounari Street. The walls drawn in black were first constructed in the age of Galerius. The walls in dark grey probably still belong into the early fourth century, whereas the walls in light grey and white were constructed much later. The palace had a long life and was used until the Middle Byzantine Period. *Source*: Mayer and Schweiss.

the city walls. The known palace covered a ground area of five hectares, but must have been larger. Its western part has not yet been excavated and seems to be as large again. If this were to be confirmed by future excavations, the imperial palace of Thessaloniki may have covered a ground area similar to that of the Domus Flavia, which was the main wing of the imperial palace in Rome. Furthermore, the palace's main ceremonial buildings could compare to those of the Domus Flavia. The most important hall in the Domus Flavia

was the so-called Aula Regia, a rectangular ceremonial room so impressive that it was represented on the reverses of Domitian's coins. Another hall across the first peristyle of the palace was the cenatio Iovis, which was used for banquets. This room was celebrated in a poem by Statius (on the palace see Zanker 2002: 111–119; Stat. *Silv*. 4.18–31; see Chapter 4). Two similarly large ceremonial spaces have been excavated in Thessaloniki. These are an apsidal hall over a 100 m long and a domed octagon with a diameter of over 30 m. This makes the Octagon one of the largest centrally planned buildings known from antiquity.

The apsidal hall was constructed next to the eastern wall of the Hippodrome (Mentzos 2010: 352–354). It was lit by a series of tall windows, both on its lateral sides and in the apse. In size and layout, this hall is the architectural twin of the so-called Aula Regia of the imperial palace in Trier (see Goethert 1984: 143). The two buildings have the same ground plan and the same dimensions. They also share architectural details, including a series of niches in the apse and a black and white marble floor. Apsidal halls were a common feature of late Roman villas and government buildings and are typically interpreted as audience halls (for a discussion of such *aulae* see von Hesberg 2006: 150–164). This is probably overly specific, even though such *aulae* were clearly used for reception rituals of one kind or another.

These two *aulae* are architecturally significant for other reasons too. They lacked any interior divisions and were thus focused on an apse. Even more remarkably, they were better lit than both older basilicas and imperial *thermae*. As a result, they created a truly new sense of space and direction, which may reflect a new court ceremonial (von Hesberg 2006: 158–159). Also, the close similarity between the two *aulae* in Trier and Thessaloniki is an indication that the Tetrarchs did not rely on local architects to build their palaces. As for the imperial baths and possibly the circuses in the new *sedes imperii*, the Tetrarchs opted to bring imperial designs to wherever they had decided to take up residence, and indeed there are some patterns of palace architecture that seem to have been a feature of most palaces.

The main entrance of the apsidal hall of the palace of Thessaloniki looked towards the Arch of Galerius, which still stands 200 m north in the hall's central axis. The arch was originally a tetrapylon, which marked a crossroad on the city's *decumanus maximus* (Mayer 2002: 43–65 with a discussion of older literature). A colonnaded street to the north led to a domed Rotunda (for a recent discussion see Ćurčić 2010: 214–222). This centrally planned building was probably intended as Galerius's mausoleum. Immediately south of the arch stood a hall, which may have been the vestibule of the imperial palace (see most recently Stefanidou-Tiveriou 2009: 397–402; also Torp 2003).

Unfortunately, we do not know how this building connected to the other parts of the palace. But the strong axial symmetry of all buildings discussed so far points to a taste for long passageways.

This is a general feature of tetrarchic architecture. For instance, the colonnaded street between the Arch of Galerius and the Rotunda mirrors the colonnaded streets of Diocletian's retirement palace in Split (see below). Unfortunately, we do not know whether palace processions were part of tetrarchic court ceremonial, as they were later recorded in the *Book of Ceremonies* by Constantine VII Poryphrogennetos (*De Ceremoniis*). But as in many large Roman villas, the reception halls of the palace in Thessaloniki were staged by placing them at the axis of a main entrance. This was not only the case with the *aula* discussed above. It also applied to the Octagon, which stood at the north end of a peristyle looking towards the sea.

The Octagon communicated with this courtyard through a vestibule covering the entire length of the peristyle's northern colonnade. Probably, it was oriented towards a palace entrance from the harbor (Mayer 2002: 46). The function of the Octagon and its architectural history is unclear. Its niches would have allowed for setting up *stibadia* for dinner parties, but it may also have served as a reception room, which is, of course, not mutually exclusive. But even though the ground plan of the building itself cannot reveal its function, the Octagon's design is, nonetheless, historically significant. It is one of the largest centrally planned buildings known from antiquity and recalls similar buildings from Rome, which had evolved from the architecture of imperial baths and villas.

Even in Rome such domed and well-lit buildings were a fairly recent innovation, with the so-called Tempio di Minerva Medica standing as an example from an imperial *hortus* in Rome (on light, von Hesberg 2006: 155–157; on centrally planned buildings, Rasch 2007: 90–100; on the Tempio di Minerva, Guidobaldi 1998). This again attests to the modernity and technical sophistication of the Tetrarchs' palace architecture and is further proof that the Tetrarchs did not solely rely on local architects and engineers, but brought new imperial building styles to their residence cities. The same applied to the Rotunda, which was later turned into a church. But the building is so close in design to domed third-century-CE mausolea from Rome that it was almost certainly intended as Galerius's tomb, even though the emperor was buried in Felix Romuliana (see below). Indeed, the only roughly comparable domed mausoleum at Tor de'Schiavi pre-dates Galerius's Rotunda in Thessaloniki by just a few years (on this tomb and its architectural typology, Rasch 1993: 84–94). Like the construction of imperial palaces outside Rome, the construction of imperial tombs in the provinces was a novelty and created new political and architectural challenges.

6. Imperial Tombs outside Rome

Before Diocletian, an emperor's ashes or corpse were brought back to Rome and buried there, even if the deceased emperor had been the last of his line, as, for instance, Gordianus III or Gallienus (see Waurick 1973 for a survey of imperial burials). But the Tetrarchs chose to build mausolea in their favorite residence cities. In the West, Maximian and Constantius were buried in Milan and Trier respectively, although only Maximian's tomb can be identified with some certainty. It was a centrally planned building, which strikingly resembled the Octagon in Thessaloniki (Johnson 2009: 70–74). By contrast, Diocletian and Galerius opted for mausolea in their native countries. Diocletian was buried in a domed mausoleum in his palace at Split. Galerius built a very similar mausoleum on a hill overlooking his palatial villa at Felix Romuliana, modern Gamzigrad (on the mausolea, Johnson 2009: 59–70, 74–82 for a summary in English; on recent archaeological work in Gamzigrad, Bülow *et al.* 2009). This was a clear and possibly intentional break with tradition. With the Tetrarchs, Rome not only lost its role as the Empire's only capital, but it no longer served as the emperors' final resting place. This underscores the importance that the Tetrarchs attributed to their new residence cities and their cities of origin, which again speaks volumes about their attitude to the Roman metropolitan tradition of government.

Politically, it made sense to avoid Rome as an imperial residence. If one of the Tetrarchs had ruled from Rome, he would likely have been perceived as the emperor with the most authority. And indeed Maximian's son Maxentius tried to gain political capital from his control over the eternal city (see below). But why shouldn't a dead emperor want a tomb in Rome? That the Tetrarchs did not showed the extent to which they no longer thought of Rome through the categories of their predecessors. To them the city of Rome was still the capital of the world (*caput mundi*) and thus of enormous historical and ideological importance. But Rome now encompassed the entire Empire and the *palatium* was wherever the emperor decided to take up residence.

This is why the term *palatium* did not just apply to the enormous palaces in the new *sedes imperii* discussed above. It was used for every imperial residence, even a temporary headquarters in a townhouse or villa (see above). This has caused debate among some archaeologists, who tried to link the term *palatium* to a particular building type. But in the study of Roman architecture, such attempts are doomed to fail because Romans used architectural terminology loosely. For instance, Hadrian's villa at Tibur is called both *villa* and *palatium* in Latin sources (Mayer 2002: 41, n. 158). Nevertheless, this terminological haziness is interesting because it shows that the emperors were now understood to rule from all over the Empire. This is why it was no longer considered scandalous or even noteworthy when an emperor like Tiberius or

Hadrian retreated to a palatial *villa*. This circumstance also makes the villas of Diocletian in Split and of Galerius in Gamzigrad particularly interesting. It reflects new architectural solutions for two problems: building a retirement retreat for an emperor and an imperial villa at the frontier.

7. A Retirement Palace

Diocletian's system of Tetrarchy envisioned that the two senior emperors, the so-called *Augusti*, should retire after 20 years. Strikingly, Diocletian and Maximian respected this plan, abdicating in 305 CE. This created an unprecedented situation. Before and after the Tetrarchs, emperors died in the purple and had no need for a place to retire. But Diocletian and Maximian did. We know nothing of Maximian's retreat, which was located in Lucania. But Diocletian's palace in Split and Galerius's palace in Gamzigrad survive. Split has been called a *château* (Duval 1961), which is, of course, anachronistic. But it is a helpful way to think about this sprawling complex, which responded to Diocletian's unique political situation. It also encapsulates the eclectic nature of tetrarchic architecture, which combined existing forms into new and meaningful ensembles.

Diocletian's retreat in Split did not look like Tiberius's and Hadrian's villas on Capri and in Tibur. At first glance, it resembled a fort (for a description of the palace in English, Wilkes 1993). The palace was surrounded by a massive wall, which was almost square, with an edge length of roughly 200 m. The south wall faced the sea, where a small landing allowed for entering the palace by boat (Figure 6.2). On its landward sides, the fortification was pierced by three gates in the middle of the north, west, and east walls. These gates were flanked by massive octagonal towers. The wall was further strengthened by 10 square towers. Four were located at the four corners of the palace. The remaining six towers guarded the three landward sides, with one each placed between a gate tower and a corner tower.

Unlike most contemporary military architecture on the Balkans, the wall was not constructed out of mortared fieldstones and brick bands. It was built out of white limestone, which was more impressive and could be seen shining from a distance. But these walls were not mere decoration. They were massive enough to withstand a siege and could support artillery positions on the towers. While the palace thus looked very much like a *castrum* on its landward sides, its seaward facade evoked contemporary villa architecture. Here, the wall was not crowned by a parapet walk but, instead, by an arched colonnade. It sheltered large reception rooms facing the bay of Split. The desire to combine representative military architecture with the amenities of a villa also determined the interior organization of the palace.

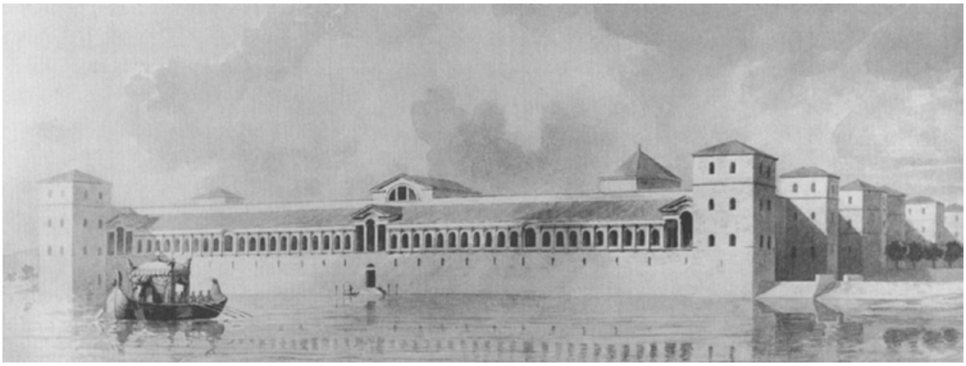


Figure 6.2 Split, reconstruction of the sea wall. *Source*: Niemann 1910: pl. 18.

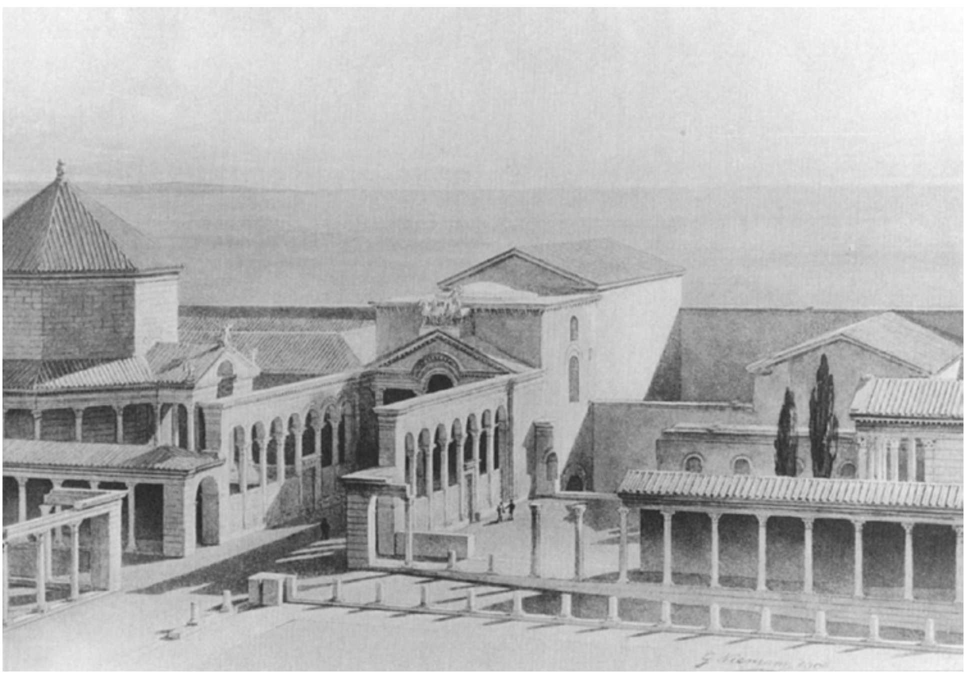


Figure 6.3 Split, reconstruction of the mausoleum and the main residential wing. *Source*: Niemann 1910: pl. 15.

As in a military camp, the three roads starting at the three gates met in the center of the walled area. From there, a shorter road led to the entrance of the main residential wing of the palace (Figure 6.3). Diocletian's palace shared this layout with the roughly contemporary military camp in Palmyra, which was built to fit into an existing bend of the city wall. There, the short section

of the *cardo* led to a monumental *praetorium*. This similarity reinforces the military character of Split, but also shows how the itinerant emperors of Tetrarchy spread and imported architectural ideas all over the Empire.

In Diocletian's palace, the *decumanus* and the northern leg of the *cardo* split the northern half of the palace into two halves. We do not know which buildings stood there. It is generally assumed that the two northern blocks may have been built up with barracks and other service buildings, but we cannot be sure. We are better informed about the southern half, which is divided into three distinct parts: a residential palace, which consisted of a main and two lateral wings, and two courtyards sheltered by the palace and separated by the *cardo*. The most important part was the main wing of the palace, which ran across the entire length of its southern seaward facade and extended about 40 m north. There, the *cardo* ended in a flight of stairs, which led up to a domed vestibule giving access to the emperor's quarters. In this southern wing, two large representation rooms opened up to the arcade overlooking the sea. These were an apsidal *aula* and a very large domed hall, which communicated with three domed *triclinia*. In addition to this southern building tract, two more residential wings with private baths and service rooms stretched north along the west and east fortification walls. The narrowness of these protruding wings left space for the two courtyards mentioned above. They occupied the area between the *decumanus*, the southern leg of the *cardo*, and the residential palace. The courtyards directly opened to the *cardo*. They were only separated from the street by a screen of columns. In the western courtyard stood Diocletian's domed mausoleum. The eastern courtyard was occupied by a temple for Jupiter and two *monopteroi* (circular structures) standing in front of it.

For the very rich, building a temple and a mausoleum on one's villa grounds was common. But while some provincial senators preferred to be buried in the old country, Diocletian's decision to build a mausoleum in his hometown was a stunning reversal of imperial policy. Perhaps Diocletian wanted to make the point that he was just a private citizen after his retirement, but at least architecturally this claim was belied by the magnificent fortification of his retirement retreat. Indeed, his tomb was considered as that of a deceased emperor, even long after his death: a thief who had stolen a purple veil from Diocletian's tomb was put to death for lèse-majesté under Constantius II (Amm. Marc. 16.8.4).

It is even more remarkable that Diocletian opted for a burial in his hometown, because the other Tetrarchs favored their *sedes imperii*. And Galerius had apparently planned to be buried in his favorite residence of Thessaloniki (see above). But after Diocletian had made a point of building a mausoleum in Split, Galerius, as the new Augustus of the East, followed suit. Instead of being buried in the Rotunda of Thessaloniki, Galerius built a

mausoleum at his birthplace in the Dacia Ripensis, which, in honor of his mother Romula, had been named Felix Romuliana. Still, there are important differences between Split and Gamzigrad, which show how the system of Tetrarchy and its architectural representation was unstable and subject to change and innovation.

8. An Imperial Villa for a Military Emperor

The site of Felix Romuliana is now known as Gamzigrad in Serbia. It is famous for its fortified villa, which, at least conceptually, recalls Diocletian's palace in Split. As recent archaeological research has shown, a small rural settlement existed on the site before the installation of the imperial villa. This nicely aligns with our literary sources, which report that Galerius was born to refugees from the abandoned Roman province of Dacia and that he had earned his nickname *armentarius* for having been a cowherd before joining the army (Aur. Vict. *Caes.* 40.15). By building a villa at his birthplace, Galerius followed Diocletian, but unlike Split, Gamzigrad was planned in several stages and more closely resembled a heavily fortified villa than a military camp or imperial palace (Figure 6.4). And unlike for Split, there is no compelling reason to believe that Felix Romuliana was ever intended as a retirement palace. Roman emperors often monumentalized the villas in which they were born (Bodel 1997). Also Maximian, who chose to retire in Lucania, had a *palatium* built close to Sirmium, "at the spot where his parents had worked as wage-laborers" (Aur. Vict. *Caes.* 19.16). In this light it may be more profitable to think about Felix Romuliana as an imperial villa close to the frontier, which had to suit the needs of a late antique military emperor and not a *princeps* like Tiberius and Hadrian sojourning on Capri or in Tibur.

In the last construction phase, Felix Romuliana was surrounded by an irregular, roughly trapezoidal wall, which covered an area of roughly 4.5 hectares (on the new plan of Gamzigrad, Bülow *et al.* 2009). The wall was fortified by 20 massive polygonal towers. Strikingly, it carefully followed an earlier circuit wall, which, like Diocletian's palace, had octagonal towers at its two gates in the west and east and square towers elsewhere. For unknown reasons, the wall seems to have been demolished, but the towers were left standing, despite their lack of military function.

The buildings within the wall include two architecturally separate residential villas (the so-called palaces 1 and 2), each with an apsidal hall opening up to a peristyle (for a detailed analysis, Bülow *et al.* 2009). In a small courtyard between these two "palaces" stood a small podium temple.

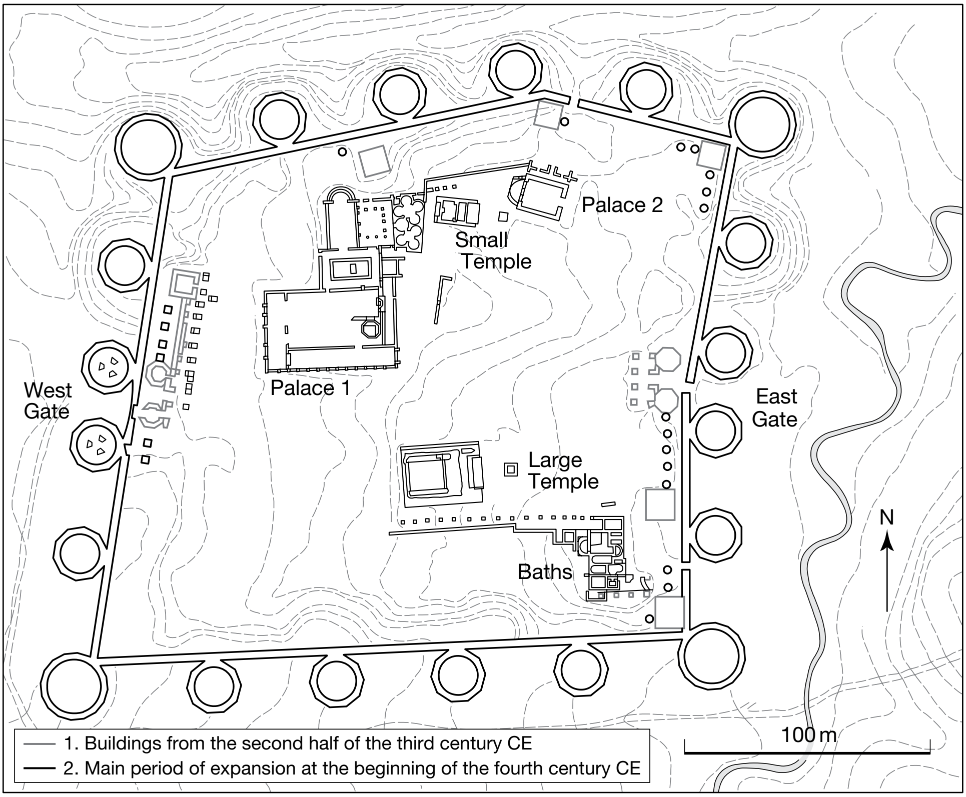


Figure 6.4 Gamzigrad. *Source*: Bülow, Wulf-Rheidt, Schüler *et al.* 2009: fig. 35. Reproduced by permission.

A second, much larger podium temple was constructed in a precinct to the south. The precinct had *thermae* attached to its southern wall, which, at least at the current stage of research, does not make good architectural sense. Bath buildings in late Roman villas were typically accessible from the main house, which was also the case in Split. Similarly puzzling is the position of a flight of five *triclinia*, which stood isolated in an enclosure west of the temple (Bülow *et al.* 2009: 155–161). Why this additional dining space was needed is unclear. The western palace-wing (palace 1) sported two much more impressive entertainment rooms. These were a triconch and a tetraconch, which were connected by a circular vestibule and opened up to a courtyard right next to the *aula* of palace 1 (Vasić 2006: 69–75).

Despite these unexplained design oddities, Gamzigrad was built in the new international style of the Tetrarchy. The *aula* of palace 1 was lit by the tall,

possibly arched, windows, which were the most prominent feature of the *aulae* of Trier and Thessaloniki (Figure 6.5). The same type of window was used in a flight of three elongated halls, which served an unknown function (Bülow *et al.* 2009: 155). Still, Galerius the emperor had the need for large and modern reception rooms, which is why he could not rely on local architects for his villa. He also had its sculptural décor imported from Asia Minor and Egypt. Among the finds from Felix Romuliana are an over-life-sized marble head of Jupiter and fragments of a monumental statue group of two seated Tetrarchs and Victory (Laubscher 1999). One of them was Galerius, whose portrait survives to this day.

Given the enormous expense that the palace must have presented, it is hard to explain why the two imperial mausolea on the so-called Magura Hill overlooking Gamzigrad were so much smaller and architecturally more modest than the imperial tombs mentioned above. There can be little doubt that these were the tombs of Romula and her son Galerius. We know that Galerius and his mother were buried in Felix Romuliana and that the two round mausolea were the two largest tombs in the immediate surroundings of the palace. Also, the road leading up to the hill was marked by a tetrapylon (Wulf-Rheidt 2007: 78). And there are no traces of a monumental tomb within the walls of Gamzigrad, which is a further deviation from the layout of Diocletian's retirement palace. It has been argued that this reflects a change in plan, but we cannot be certain (Wulf-Rheidt 2007: 76).

Still, the complex is important for our understanding of the development of new architectural traditions. For instance, Galerius's villa and tomb became

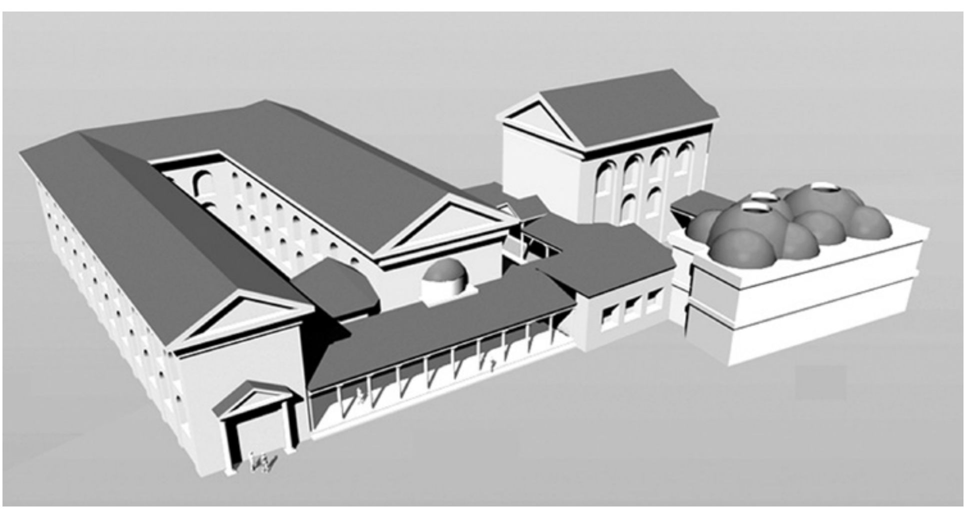


Figure 6.5 Gamzigrad, reconstruction of the main residential wing. *Source*: Bülow, Wulf-Rheidt, Schüler *et al.* 2009: fig. 37. Reproduced by permission.

the model for the fortified villa of Sarkamen nearby (for a recent discussion, Popović 2007). This unfinished complex must have belonged to an Augustus or Caesar because of an imperial mausoleum nearby. It was of modest dimensions but had an over-life-size porphyry statue of a seated emperor placed right next to it. This imitation of Galerius shows that the new tetrarchic building concepts became paradigmatic, at least to other emperors. With a new imperial system in place, the Tetrarchs were, in architecture as in other matters, the new model. Indeed, some architectural ideas developed by the Tetrarchs outside Rome found their way back to the capital, complicating notions of center and periphery.

9. The Tetrarchic Paradigm and Rome

The end of Tetrarchy did not put an end to tetrarchic imperial architecture. Maxentius, the son of Maximian, took control of Rome, Italy, and North Africa and followed the tetrarchic fashions discussed above. This is all the more remarkable because the Roman buildings sponsored by the Tetrarchs themselves were very conservative and because Maxentius went to great length to cast himself as an emperor ruling from Rome. As long as the system of Tetrarchy worked as intended, the emperors avoided the eternal city. Even Maximian, who ruled over Italy, only visited a few times and never stayed long. Still, during the reign of the Tetrarchs, Rome saw substantial building activity.

First, the Forum Romanum had to be reconstructed after a major fire during the reign of Carinus. Tellingly, the Tetrarchs did not use the opportunity to put their own stamp on the heart of the Roman Empire but instead ordered a more or less faithful reconstruction of the existing buildings (Bauer 2012: 7–25). They nonetheless appeared prominently on the forum's so-called Five-Column Monument, which the Senate erected for them on the occasion of the twentieth jubilee of Diocletian and Maximian. It featured five tall monolithic columns, one for each Tetrarch and one for Jupiter in the middle. From one of the surviving column bases we know that the Senate opted for a conservative iconography, which, in visual, and, by extension, political terms, put the four emperors into the same tradition as the *principes* of previous centuries. The same effect was achieved through the reuse of older imperial reliefs on the so-called Arcus Novus Diocletiani (on both monuments, Mayer 2002: 176–183 with a discussion of older literature; Bauer 2012: 57–70; 36–43). In architectural terms, the same demonstrative conservatism was on display in the Baths of Diocletian. These baths were, despite minor improvements, basically a slightly larger version of the Baths of Trajan and of Caracalla (see Chapters 5 and 16).

Whether or not the design of Diocletian's Baths was intentionally conservative, Maxentius built in a much more modern vernacular after he had seized Rome. Maxentius cast himself as the "preserver of his Rome" (*conservator urbis suae*) and showed his affection for the city by erecting some of its largest buildings. The current scholarly consensus on this phenomenon is that he did so to broadcast that Rome was again the Empire's functional capital (see Cullhed 1994; Oenbrink 2006; cf. Ziemssen 2012).

First, Maxentius built a new bath complex in the palace on the Palatine. This was a clear sign of a renewed imperial presence because the new baths towered over the Circus Maximus and were therefore plain for all to see (Oenbrink 2006: 175–178; Ziemssen 2007: 59–67). But Maxentius's most impressive building was a gigantic basilica, which stood next to the Temple of Venus and Roma that the emperor had rebuilt after a fire (for the basilica, Kultermann 1996; on the temple, Ziemssen 2007: 74–82). Opposite the basilica stood the monumental pepper markets (*horrea piperataria*) of the city. The function of the basilica is unclear. It has been recently suggested that it may have served as the emperor's throne hall in the heart of the city (Ziemssen 2012: 95–104). This attractive hypothesis is beyond proof, but the Basilica of Maxentius does indeed share some design features with the reception rooms of tetrarchic palaces, even though there are differences too.

Unlike the *aulae* in Trier and Thessaloniki, the Basilica of Maxentius has three naves. But the central nave ends again in a large apse with rectilinear niches. The building was originally only accessible through a narrow vestibule to the east. Later a monumental entrance was opened on the south side and a second apse installed in the opposite north wall. This change may have occurred under Constantine, who finished the basilica in his name. Indeed, on the Arch of Constantine, the emperor is represented seated in the apse of a basilica, dispensing money to the Roman people. This may not have been Maxentius's basilica, but the relief shows that the building would have been well suited for imperial rituals. And indeed, the basilica resembles the palace *aulae* discussed above in more than one respect. Again, the building was bathed in light. Not only were there *Thermenfenster* in the groined vault of the central nave, but all exterior walls were pierced by enormous arched windows, which were arranged in two rows above each other. If the basilica was indeed used like a tetrarchic palace *aula*, it would have been the most impressive of them all.

But Maxentius not only built within the city walls. He also built a villa on the Via Appia, which mirrored the tetrarchic palaces in the new *sedes imperii* (most recently, Ziemssen 2012: 89–94). There he erected a new domed imperial mausoleum for his son – and possibly for his dynasty (for a detailed study, Rasch 1984). By building this tomb, Maxentius demonstrated that he wanted to make Rome into the emperors' final resting place again. But,

strikingly, he also added a circus to the whole ensemble. This circus was directly connected to the villa through a long *porticus*, leading directly to the imperial box. This arrangement is well attested for Constantinople and is likely to have existed in all imperial residences (Mayer 2002: 116–119). The box at the finishing line was also designed to seat an emperor, who occasionally chose to crown victorious charioteers himself. This ensemble of villa, mausoleum, and imperial tomb recalls all important elements of a tetrarchic palace, all the more so as the villa was equipped with a large apsidal *aula*, directly linked to the *porticus* leading to the imperial box. Why Maxentius did not content himself with the original Palatium and the Circus Maximus is unclear. Perhaps he wanted to draw attention to his new family mausoleum? Or perhaps he wished to demonstrate that he would only build his main villa, or another palace, within walking distance from the city of Rome? But whatever his motives were, it is clear that Maxentius followed, at least in terms of his building policy, patterns established by the Tetrarchs. And these patterns had important consequences for imperial building policy into the fourth century. This is true even for Constantine, who destroyed the tetrarchic system.

10. Epilogue: Constantine and the TetrarchicTradition

Constantine's reign constituted Rome's next historical watershed in the realm of architecture as in other matters. As the first emperor to embrace Christianity, he commissioned monumental churches and shepherded in a new type of building. Yet, Constantine still followed tetrarchic models in palace architecture. Just like the Tetrarchs, he established a new *sedes imperii*, with the key difference that he named the city after himself. Still, he did for his new city what the Tetrarchs had done for their *sedes imperii*: Constantine built his palace next to the circus of old Byzantion and constructed imperial baths, a monumental tomb, and even a new forum (Mayer 2002: 91–97). Later Christian tradition maintained that Constantine had founded Constantinople as a second Rome, but the available evidence suggests that only Theodosius I actively worked to turn the city into the New Rome. In the two generations between the end of the Constantinian dynasty and Theodosius's rise, Constantinople's leading men felt jilted by the emperors of the Valentinian dynasty. In an attempt to persuade Theodosius to choose Constantinople over Thessaloniki as his primary residence, the pagan rhetor Themistius famously made the point that not buildings but men and honors defined a city (*Oratio* 14, 5). An emperor's presence was the ultimate honor a city could receive. As expressed through the construction of palaces,

circuses, and tombs, this was a deeply personal relationship. Theodosius did not opt for Constantinople right away. He only left Thessaloniki after violent conflict with its denizens. It may be no more than this historical coincidence that led to the creation of a second Rome, which was to eclipse all other *sedes imperii*, at least in the East. But the tetrarchic system had created a new world in which *sedes imperii* and their architecture had become the new standard for imperial builders.

GUIDE TO FURTHER READING

The architecture of the Tetrarchy has only recently become a major subject of archaeological research. As a result, there are no substantive research summaries for this evolving and exciting field. Much of the recent work on the tetrarchic architecture is in languages other than English. Nonetheless, some older work for readers of English on the building projects of the Tetrarchs provides a good introduction to the issues discussed in this chapter. Krautheimer (1983) deals with the problem of imperial residence cities. A recent article by Lucy Grig in her edited volume (2012) also tackles the issue of the Roman capital(s) in the fourth century CE. On the architecture of Tetrarchy, Frazer's article on Maxentius's buildings in the Via Appia (1966) is still worth reading. The tombs of the Tetrarchs and other late Roman emperors have been studied by Johnson (2009).

CHAPTER SEVEN

Architect and Patron

James C. Anderson, jr.

Introduction

Roman architecture was eclectic and was characterized by differing styles that can be attributed to regional tastes, materials, and tradition as well as to the diverse preferences of a wide range of patrons who commissioned and paid for buildings. Roman monuments were designed to serve the needs of their patrons rather than to express the artistic ability of their architects and designers (who were often one and the same). While the evidence for Roman architects is scattered and often fragmentary, that for their patrons is extensive and covers the full range of building dedications from the entire Roman Empire. It is best to begin with the small body of evidence we have for known and named Roman architects, or architects practicing in the Roman world, and then relate that limited body of evidence to the much vaster one for patronage in Roman architecture. The available evidence comes from a wide variety of ancient historical and literary sources, Latin and Greek inscriptions, and archaeology.

The earliest Roman architect known to us appears to be D(ecimus) Cossutius, a Roman citizen who, in the 160s BCE, was chosen by the Seleucid monarch of Syria, Antiochus IV Epiphanes, to complete the long-unfinished Temple of Olympian Zeus in Athens, which had been begun in the late sixth century BCE. Cossutius is described by Vitruvius (*De Arch.* 7.praef.15) as an architect of great skill and knowledge, and his responsibility for this project in Greece is also mentioned by Velleius Paterculus (1.10.1) and confirmed by a

A Companion to Roman Architecture, First Edition. Edited by Roger B. Ulrich and Caroline K. Quenemoen.

statue base found at the Olympieion (*IG* III.1.561), which refers to Cossutius as a Roman citizen. Hence we seem to have excellent evidence that a Roman architect worked for the Syrian king Antiochus IV, who would then have been his patron, in Athens in the second quarter of the second century BCE. It is remarkable that a Roman builder would have been selected to undertake this project rather than a Greek one, but the evidence will bear no other interpretation. There is some slight further evidence that suggests Cossutius was from Campania and had received his architectural training there, but spent most of his career in the service of Antiochus IV and very possibly in Syria as well as in Greece, and so was a Roman architect working strictly in the Greek Hellenistic architectural tradition. A family of Cossutii became involved in the architectural and sculptural import business that began to flourish in the second century BCE, especially after the Roman conquest of Corinth in 146, and this family enterprise may have been a legacy from Decimus (Anderson 1997: 20–22).

Not long afterward, a Greek Hellenistic architect turned the tables on Cossutius, as it were, by working in Rome and for more than one Roman patron. This was Hermodorus of Salamis, who is also mentioned by Vitruvius (*De Arch.* 3.2.5) and Velleius (1.11.3–5) and credited with having designed and executed the Temple to Jupiter Stator that stood in the Porticus Metelli, which was paid for by the triumphal general Q. Metellus Macedonicus around 143 BCE (see Chapters 2 and 11). Metellus had already become an important importer of Greek art to Rome, and this temple sealed his reputation as a bringer of Hellenic culture to the Romans since it was the first temple in the city to be built entirely of marble. Metellus vied with other wealthy *triumphatores* including Scipio Aemilianus, Lucius Mummius, and Decimus Junius Brutus Callaicus in embellishing Rome with magnificent and expensive monuments that made use of materials such as marble that had just become available to the Romans with their conquests in the eastern Mediterranean. Hermodorus's training and skill in building in marble may help to explain his importation of it to Rome. He seems to have continued his career in Rome under several aristocratic patrons; attested projects include a temple to Mars around 132 BCE for Callaicus and some sort of naval monument, possibly a temple to Neptune, in Rome for Marcus Antonius in 100–99 BCE (Cic. *De Or.* 1.62). Hermodorus, then, characterizes the process by which Greek Hellenistic architecture was brought to Rome, and there is every possibility that he brought with him his own trained craftsmen and stonecutters, a workshop which could execute the increasingly Hellenized commissions being offered by Roman nabobs and could also train skilled Italian artisans to carry on these traditions and essential abilities (Anderson 1997: 17–19).

By the end of the first century BCE, the practice of wealthy Roman political and military characters giving major architectural gifts to the city was well established, although Gaius Marius managed to cause something of a stir,

after his victory over the Cimbri and Teutones in 102 BCE, when he commissioned a temple to Honos et Virtus (and paid for it out of the spoils of his victory) but insisted that it *not* be built of marble, but of old-fashioned or traditional materials instead (Vitr. *De Arch* 7.praef.17; see Chapter 2). Marius was known as an anti-Hellene, so the terms of the commission seem appropriate to his reputation, and Vitruvius also gives us the name of the man who built this temple – Gaius Mucius – but never applies the term "architect" to him. According to Vitruvius, Mucius built the building "… by trusting in his own great learning …," which has led to speculation that this Mucius was none other than the patrician Q. Mucius Scaevola, whose daughter was married to Marius's son, and that he was perhaps an aristocratic amateur architect who may have designed the temple as his friend Marius wanted it, but was probably not the on-site supervisor of the project. While this remains hypothetical, it is well within the realm of possibility and emphasizes the point that architecture in Rome was very much a "gentleman's game" in which wealthy amateurs might participate. Vitruvius's refusal to label him an "architect" respected the traditional prohibition against members of the senatorial order participating in money-making enterprises, or at least appearing to do so (Anderson 1997: 24–26). Another likely aristocratic amateur appears to have been L. Aemilius Paullus, who is described as taking a good deal of direct responsibility for two successive rebuildings of his family's greatest gift to the city, the Basilica Aemilia in the Roman Forum (Figure 3.1, g; see Chapter 2). He is said to have restored it first in 54 BCE as cheaply as possible, since the family was then short of funds, then turning around and redoing the job – properly this time – immediately thereafter when the money was provided to him by Julius Caesar out of the spoils the latter was raking in from his conquest of Gaul. Clearly, Paullus was not financing the project, but Cicero does indicate that he was personally involved to the extent that, in the first restoration, he decided to reuse columns from the old building when he could not afford new ones. After these successive projects, the basilica was for a while called the Basilica Paulli (Cic. *Att.* 4.16.8; Richardson 1992: 54–56).

A very clear example of patronage offered to a career architect is provided by a funerary inscription that was found on the Via Praenestina in Rome, set up sometime between 65 and 35 BCE, which is preserved in its entirety today in the inner courtyard of the Fatebenefratelli Hospital on Tiber Island. The text of the inscription (*CIL* 1(2).2961) reads: "Lucius Cornelius, son of Lucius, of the Voturia voting tribe [was] the supervisor of building (the Latin term is *praefectus fabrum*) of Quintus Catulus [as] consul, and [his] architect *(architectus)* [as] censor." This text is a goldmine of information for our investigation of Roman architect and patron, since it brings us into a specific period and names a well-known Roman aristocrat as patron of a practicing architect over a substantial period of years. The Quintus Catulus named here is universally

agreed to be the younger Quintus Lutatius Catulus who was in essence the right-hand man and chief administrator of the dictator L. Cornelius Sulla. We know that this Catulus was consul in 78 BCE, and appointed to a term as censor in 65. Furthermore, he took part in two major building projects while holding those offices: the construction of the city record office – the Tabularium, which still fronts the east (forum) side of the Capitoline Hill – in 78, and the reconstruction of the Temple of Jupiter Capitolinus, which was completed while he was still censor in 62 and upon the frieze course of which Catulus's name was inscribed (Tac. *Hist.* 3.72; see Chapter 2). Thus Lucius Cornelius played major and responsible roles in two of the biggest architectural projects carried out in Rome in the first half of the first century BCE, and in both cases he served the same patron. The use of the term *praefectus fabrum* to describe his role in the earlier project is interesting since the term is widely used to describe all sorts of responsible but subordinate civilian positions, but in military contexts it often has the quite specific meaning of a building supervisor, and that is clearly how it is being used here. This may further imply that Cornelius received his architectural training in the Roman army, and his *praenomen* and *nomen* suggest that his family was connected with that of the dictator Sulla, very possibly as the grandson of a freedman of the Cornelii, in which case he was technically an *ingenuus* in social status (Molisani 1971: 1–3; Donderer 1996: A108). From the first half of the first century BCE on, the post of *praefectus fabrum* is commonly attested in military careers where its meaning (supervisor of building) is straightforward, and its use here demonstrates that in a civilian context, too, it could be used in the literal sense. Cornelius's career as an architect was clearly directly connected to the political successes of his patron Catulus, and he intended that to be apparent in his epitaph. At least two later inscriptions mention men named Cornelius who are called architects, and it is possible that these were direct descendants, though there is no absolute proof (Anderson 1997: 26–32).

Cicero became, especially in the 50s and 40s BCE, a frequent patron of architects or builders, and his letters provide us with the names and a certain amount of information about architects who worked for him and his brother Quintus. The most important is clearly Vettius Cyrus, whom Cicero's correspondent Atticus criticized harshly, to which Cyrus apparently responded (through Cicero) with an elaborate defense of his use of very large windows (Cic. *Att.* 2.3). Cyrus's name suggests a Greek origin; Cicero says he spoke Greek and that he was free to work for whomever he chose, so he must have been at the very least a freedman (*libertus*) although his wealth and mobility probably suggest a free foreigner who lacked citizenship (a *peregrinus*). Cyrus also seems to have accepted architectural commissions from P. Clodius Pulcher, the infamous aristocratic gangster who was killed in a brawl on the Via Appia in 52 BCE. As Cicero tells the story, it was the news that Cyrus had died that

caused Clodius to set out for Rome that fateful day. Furthermore, it seems that both Clodius and Cicero had witnessed Cyrus's will some days earlier (Cic. *Mil.* 17–18). Clearly, Cyrus's connection to Clodius was at least as close as his association with Cicero, and this suggests in turn that Cyrus may have been one of the architects responsible for the extravagance of Clodius's house on the Palatine (Pliny *HN* 36.24.103). Cicero also speaks of a freedman of Cyrus, named Chrysippus, who appears to have worked for him in the 50s and 40s BCE, as well as for Julius Caesar, and though Cicero (*Att.* 12.29) described Chrysippus as fulfilling all the same duties and roles that Cyrus had done, he never actually calls him "architect." Cicero does mention to Atticus in 45 BCE that Caesar was planning to put some architect in charge of his ambitious building program for the city of Rome, but – frustratingly – the orator does not provide the architect's name. It has often been supposed that he is referring to Chrysippus here, but there is no proof (Cic. *Att.* 13.35.1). Other architects of freed or servile origin are mentioned by Cicero as being shared between himself, his brother, Atticus, and periodically by other wealthy Roman patrons, so clearly the services of these skilled artisans and builders were much in demand, and they were permitted to accept commissions and to participate in a variety of projects. But they remain little more than a list of names to us: Corumbus, Rufio, Numisius, Cluatius, and Diphilus, to be precise. Clearly, architects or supervising builders could come from very different levels of Roman society by the mid-first century BCE, and patrons were willing to bid for their services (Anderson 1997: 35–39).

It is a pity that we know so little about the relationship between Julius Caesar and any architects who may have worked for him (such as the possible connection with Chrysippus), but with the institution of the principate under Augustus and through the remainder of the first century BCE, our information improves. We find two excellent examples of the patron/architect relationship, Vitruvius himself and L. Cocceius Auctus, both of whom worked ultimately under the patronage of Augustus. They appear to have pursued quite different career paths in architecture at more or less the same time. Vitruvius's greatest importance to posterity will always be his manual for building, *De Architectura*, which he seems to have composed in the 20s BCE (certainly around 27, when Octavian assumed the name Augustus; See Chapter 22). In his manual, Vitruvius (whose *praenomen* and *cognomen* are uncertain) provides enough information to reconstruct most of his own career as an architect. His family was sufficiently well off to give him the rhetorical education of a Roman gentleman (Vitr. *De Arch.* 6.praef.4), despite which he remained relatively obscure within his profession (*De Arch.* 6.praef.5). He received his early architectural training in the army of Julius Caesar and may well have been present at the siege of Marseilles in 49 BCE, which he describes vividly (*De Arch.* 10.16.11–12). He was also with Caesar at the siege of

Larignum in the Alps (*De Arch.* 2.9.15–16), which cannot be dated, and during the campaigns in Numidia in 46 (*De Arch.* 8.3.24–25). After Caesar's assassination in 44, Vitruvius – still in the army architectural service – was appointed a supervisor for construction and repair of engines of war, and he continued in this position for some years upon the recommendation of Octavian's sister Octavia, who seems to have been Vitruvius's direct patroness during the years between 44 and 27 (*De Arch.* 1.praef.2). That post may well have carried the title *praefectus fabrum*, or some variation of it. Vitruvius, then, is describing himself as a freeborn and educated Italian who entered the ranks of young men who received patronage, directly or indirectly, from the new *princeps* and worked their way into a profession based on training received in the military. Vitruvius must have left the army (maybe after 20 years' service, so with veteran status and benefits) by the early 20s BCE, but he seems to have remained largely dependent on the patronage of Augustus and his family. He had worked for the city water system during the aedileship of Marcus Agrippa (33 BCE) and invented a new measurement for lead pipes, as is attested both in his own text (Vitr. *De Arch.* 8.6.2) and by Frontinus (*Aq.* 25.1–2). His commission to serve as chief architect for a public basilica in the town of Fanum Fortunae also seems to have come to him through his connection with the family of Augustus (*De Arch.* 5.1.6–10) although he himself gives no date for the job, and he tells us that by the time he wrote the preface to the first book of his manual – which were probably the last words written, so perhaps not earlier than 20 BCE and possibly later – he was a stipendiary of the *princeps* (*De Arch.* 1.praef.2–3). A fairly clear career path emerges: that of a young freeborn Italian working his way into an architectural career first and foremost in the army, then in civilian positions that came his way because he remained under the patronage of Augustus and his immediate family. Here the relationship between architect and patron emerges more clearly than perhaps anywhere else in our evidence, and what few testimonia there are outside Vitruvius's text corroborate the picture we can draw (Anderson 1997: 39–44).

Contemporary with Vitruvius, another member of the building profession can be seen with some clarity: one Lucius Cocceius Auctus, who seems to have worked exclusively in the region of the Bay of Naples in the last decades of the first century BCE. Cocceius is mentioned in two inscriptions: a signature scratched onto the wall of the Temple to Augustus at ancient Puteoli (*CIL* 10.1614) and a fragment of architrave found at Cumae (*CIL* 10.3707). The first calls Cocceius a freedman of Gaius Postumius, and the second specifically labels Cocceius a *redemptor*, a contractor in his own right. Cocceius's former owner, C. Postumius Pollio, is also attested in these years: he dedicated the Temple to Augustus at Terracina (*CIL* 10.6339), and his name is also inscribed on the lintel of a door at the town of Formiae (*CIL* 10.6126). It has been suggested, because of his adoption of the name Cocceius (rather

than Postumius), that the builder had been brought to Campania from Greece as a slave by L. Cocceius Nerva, suffect consul of 39 BCE and one of the most important political figures in Rome during the second triumvirate, and was manumitted by Nerva (not Postumius as stated in the Puteolan graffito). Strabo (5.4.5) attributes to Cocceius, presumably the same man, the creation of the tunnels that linked Cumae to Lake Avernus and Puteoli to Neapolis, a project carried out between 38 and 36 BCE as part of the gigantic undertaking that turned the Cumaean peninsula, Cape Misenum, and much of the western part of the Bay of Naples into the main port for the Roman fleet. It is now widely agreed that this freedman immigrant architect rose to a position of trust and influence in the military building service of Octavian, at least in Campania. Cocceius's connection with C. Postumius Pollio may be better explained as subsequent to his work for Octavian and Cocceius Nerva. Once manumitted, Auctus was presumably receiving patronage directly from his former master. Upon Nerva's death, he would, as a freedman, have needed to attach himself to a new patron who was a freeborn Roman citizen in order to issue building contracts and so on, and Postumius may have served in this capacity. The two men may have formed what amounts to an architectural firm that permitted the apparent freedom to choose his projects that Cocceius Auctus enjoyed, since he could function, legally, as a *redemptor*, an independent architectural contractor, under the aegis of Postumius Pollio. If this hypothesis is correct, then L. Cocceius Auctus by the apogee of his career was functioning as a true *architectus* and *redemptor* in Campania, while preserving all the legal niceties required of a freedman (Gros 1983: 436–438).

Beyond the evidence we have for the architectural careers of Vitruvius and Cocceius, and their fairly apparent connections to specific patrons, what is clearly revealed is that it was the *princeps* – Augustus – who had become the ultimate patron, the primary dispenser of *beneficia* or *munera* to architects of his age, even though there were intermediary figures (Octavia and Agrippa in the case of Vitruvius, probably L. Cocceius Nerva and then C. Postumius Pollio in the case of Cocceius Auctus) between architect and emperor. After Augustus's death in 14 CE, the evidence for such specific architect/patron relationships becomes less and less, primarily because the great architectural projects carried out both in Rome and in major provincial cities tend to be remembered to us solely under the name of the emperor responsible, and sometimes that of a local sponsor, but only rarely including any specific testimony about an architect. The same is true in private building in cities throughout the Roman world. We frequently have the names and distinctions of individuals who were financing the donations in a vast number of cities and towns; we only rarely have even the names of any architects involved, and when the occasional name does turn up (almost always in an inscription), it is not necessarily, in turn, connected directly to a patron. For example, there are

few literary references or inscriptions that provide mention of the architects connected to the extensive construction and architectural benefactions of Marcus Vipsanius Agrippa, Augustus's son-in-law and right-hand man in politics and war as well as in patronage (Knell 2004: 83–86, 89–91, 98–101). Agrippa was by no means the only figure associated with Augustus who became a patron of building and hence, presumably, of architects in this period. A clear example, who both experienced Agrippa's contributions and may have modeled his own patronage of architecture in his own kingdom of Judaea upon Agrippa's, is Herod the Great, whose building program brought Roman imperial architecture to the southern Levant in force. While archaeological investigation permits a convincing reconstruction of what Herod built, and the biographical sources available make it clear that Agrippa was his model and inspiration, exactly who were the architects responsible, what their social status may have been, and how they received and dealt with Herod's patronage are all pieces of information that have fallen out of the record preserved to us (Roller 1998: 43–53, 85–124).

Moving beyond the age of Augustus, the situation remains much the same. In the Julio-Claudian period (14–68 CE) there is plenty of evidence for both individual architectural benefaction in many cities and for architectural patronage, but there are few if any individual architects connected to these. Several good examples may be considered at Pompeii. What is often called the Temple of the Genius Augusti on the east flank of the forum was dedicated and paid for by a priestess named Mamia (*CIL* 10.816), and the immense porticoed building next to Mamia's temple, the *aedificium Eumachiae*, was paid for by the public priestess Eumachia and dedicated in her own name and that of her son M. Numistrius Fronto (*CIL* 10.810, 812–813). These were major contributions to the public buildings on the forum of Pompeii and show private benefaction taking the form of major architectural contributions to the public appointments of a Roman city (Richardson 1988: 191–198). Just north of Pompeii's forum, a Temple of Fortuna Augusta was added in 3–4 CE, a date securely attested by a surviving inscription (*CIL* 10.824). A second inscription (*CIL* 10.820) lists the builder as M. Tullius, a distinguished citizen of Pompeii, who put it up on his own land and at his own expense. There is less evidence for direct dedications from Rome at Pompeii, although it has long been assumed that various of the four freestanding arches around the forum (there may even be traces of a fifth) should be regarded as gifts from various Julio-Claudian rulers, though none can be securely identified with particular rulers and the epigraphical evidence is meager. Nonetheless, Pompeii does reveal that the system of private and individual architectural patronage remained strong in the first century CE, though there are no individual architects who can be associated with these creations (Richardson 1988: 202–209).

The architects about whom we do hear are famous names who functioned mostly in Rome and are connected with specific projects. The very scarcity of the evidence may suggest that as there were permanent official positions in the administration of the city's water system for architects (Frontin. *Aq.* 116–117), so there may have been similar positions for a number of architects in the growing bureaucracy. The office called *opera Caesaris*, once it came into existence late in the first century CE, must have employed architects and other building and maintenance specialists, but again their names are lost to us. In fact, only the renowned Severus and Celer in the reign of Nero, Rabirius in the reign of Domitian, and Apollodorus in the reign of Trajan, along with very occasional other names, are preserved. These tend to be associated with specific buildings and so their fame seems to stem from personal preferment given directly by the emperors for whom they created major feats of architecture, mostly in Rome (See Chapter 4). The epigraphical record does mention architects among the personal staffs of the emperors (the *familia Caesaris*) who were often of slave or freedman status, as well as architects brought to Rome for specific projects or expertise they possessed (Anderson 1997: 50–52). Of the famous names, we can say little about Severus, who is called *magister*, a master builder, or Celer, who is called *machinator*, presumably an engineer (Tac. *Ann.* 15.42). They were both engaged in Nero's much hated project to fill the center of Rome with a new imperial residence, the Domus Aurea, and with a failed undertaking to build a canal all the way from Lake Avernus on the Bay of Naples to the mouth of the Tiber – one of many attempts to compensate for Rome's lack of a decent natural harbor on the Mediterranean – and it is reasonable to assume that one or both was involved in other Neronian construction projects, but that is not specifically attested (MacDonald 1982a: 125–127; Wilson Jones 2000b: 21). More important, but equally sketchily attested, is the career of Rabirius, who we assume was the mastermind behind the gigantic building program instituted in Rome during the reign of Domitian (81–96 CE). The poet Martial (7.56, 8.11, and 10.71) specifically attributes the design and execution of the Flavian palace on the Palatine to Rabirius, and there seems no reason to doubt this. Architectural and topographical evidence appears to indicate that he was involved in most of the Domitianic projects carried out in Rome, but the data are archaeological and comparative, not specific. Nonetheless, it is likely that Rabirius, working under the direct personal patronage of Domitian, was responsible for a major reshaping of Rome, which was left incomplete when the emperor was murdered in September of 96 CE (Anderson 1997: 55–59). A tantalizing glimpse of the workings of the industry that actually built this new Rome under Domitian is given us by the reliefs of the funeral monument of Q. Haterius Tychichus, a wealthy freedman whose entire family seems to have worked as *redemptores* (contractors) for large-scale construction at the time.

On his tomb, the fragments of which are preserved in the Vatican Museums, Quintus displayed both a series of the buildings, several of them named, in whose construction he and his family had participated, and some of the machines they supplied and used, but nowhere is he called an *architectus*. He was a smart businessman who grew rich by providing what was needed to Domitian's building program (Donderer 1996: A143; Leach 2006: 11).

Most thoroughly documented of the master architects in the city of Rome is Apollodorus of Damascus, who is called both *praefectus fabrum* (by this time perhaps a minister of building works) and *architectus* to the emperor Trajan (ruled 98–117 CE). He gained renown during Trajan's wars in Dacia when he designed a bridge that was able to span the Danube River (Procop. *Aed*. 4.6.12–13; Dio 68.13) and returned to Rome, presumably, with his *princeps*, to take up the role and duties that Rabirius had fulfilled for Domitian. A hiatus in building in the city after Domitian's death ended probably around 104 CE, and Apollodorus became the supervising architect who created Trajan's Forum and Basilica Ulpia, the so-called Markets of Trajan immediately next to the Forum, the Trajanic Baths on the Oppian Hill north of the Colosseum, and an unidentified Odeum somewhere in the city, if not more besides (Anderson 2003: 3–6). According to later story-telling, Apollodorus criticized and offended Trajan's successor Hadrian and was put to death by him (presumably after his accession in 117 CE: the tale is told by Dio 69.4), but the facts of this tale are open to reasonable doubt (Ridley 1989). What the tale does reveal is that Apollodorus had gained remarkable authority and standing in Roman architecture in the early second century CE, to the extent that he has sometimes been credited with the design of the extant Pantheon (Heilmeyer 1975; Haselberger 1994: 296–303), though there is no independent evidence to support this, and the creativity of the design may still be better assumed to be Hadrian's (Gros 1996a: 174–178). Nonetheless, the sheer volume of attributions is convincing evidence for Apollodorus's importance to the development of imperial architecture in the early second century CE, and the sources attest reasonably clearly to his preferred status under Trajan, who clearly extended massive amounts of support and patronage to him (MacDonald 1982a: 129–137; Wilson Jones 2000b: 21–24). The sheer volume of Apollodorus's projects may suggest that the nature of the role of architect had started to change. Apollodorus, at least, might best be viewed as the maestro who is engaged primarily with the main ideas, designs, and drawings for building projects, but less involved with day-to-day supervision on site. If that is so, then he must have had a substantial number of architects and engineers working under him, much in the way the *familia aquarum* mentioned by Frontinus (*Aq*. 116–117) functioned to build and maintain aqueducts.

There can be no question that the kind of private architectural patronage that had continued from the first century BCE through the later Augustan and Julio-Claudian periods still went on throughout the rest of the first century CE and beyond, but again we are woefully short of the names of specific architects to attach to evidence of architectural benefaction and patronage. Probably the clearest example of such patronage is provided by Pliny the Younger, who had become patron of the town of Tifernum Tiberinum, probably in succession to his uncle Pliny the Elder, who perished in the eruption of Mt. Vesuvius in August of 79 CE. Pliny's description of his obligation to the town, and his euergetism toward it and its citizens, is worth quoting:

> [I must] perform a pressing duty. There is a town neighboring my estates, whose name is Tifernum Tiberinum. It appointed me as patron when I was little more than a boy, with as much more enthusiasm as poorer judgment. It celebrates my arrivals, mourns my departures and rejoices in my honors. To show my gratitude (for it would be perverse to be outdone in affection), I built a temple there with my own money, the dedication of which, since it has been completed, it would be sacrilegious to postpone any longer. So we shall be there on the day of dedication, and I have arranged to celebrate it with a feast. (Pliny *Ep.* 4.1.3–6)

Here, clearly, Pliny demonstrates his affection for and his obligation toward the town that has honored him by giving the gift of a new temple built with his own funds (Eilers 2002: 102–105). Sadly, he does not provide us with the name of the architect from whom he had commissioned the temple, although Pliny does address a later, though probably unconnected, letter (Pliny *Ep.* 9.39) to a man named Mustius whom he asks about the restoration of a temple on one of Pliny's estates that had fallen into disrepair. Pliny does not specifically call Mustius an architect, but he does say that Mustius had supplied the plan for the entire restoration project, which makes his role sound very much like that of an architect working to a private commission. Mustius was clearly experienced in building, since Pliny also asks him to obtain four marble columns as well as some other marble and leaves the specific choices up to Mustius's judgment (Anderson 1997: 63–64).

The emperor Hadrian (ruled 117–138 CE) is central to any discussion of architecture and patronage during the high Roman Empire, since it is generally accepted that he was a skilled amateur architect who actually took charge of the design of buildings himself, as seems to be attested for the first version of the Temple of Venus and Roma (Dio 69.4), the Temple to the Deified Trajan, the later Pantheon still standing in the Campus Martius, and his own Mausoleum with its bridge – Pons Aelius – that crossed the Tiber to it (*SHA Hadr.* 19. 9–11). Further, assuming that Hadrian was indeed an enthusiastic experimenter in architectural design and decoration helps to account for the

unique, sometimes bizarre, and generally unexpected character in many of the buildings left to us at his villa near Tivoli. As already attested in the case of Q. Mucius Scaevola during the Late Republic, an enthusiasm for dabbling in architecture seems to have been acceptable for a wealthy and well-educated patrician, and there is little reason not to suppose this remained true in the first half of the second century CE. Just how much hands-on architectural drawing or planning Hadrian did cannot be assessed; it may well have amounted to little more than suggesting to his practicing architects what he thought he wanted. Certainly he is said by one source (SHA *Hadr.* 19.2–13) to have engaged in building with the help of the architects Decrianus and Apollodorus (Richardson 1992: 59; Wilson Jones 2000b: 24; Gros 2002). Beyond his projects in Rome, Hadrian also spread patronage and benefaction all around the Roman world, as he traveled to essentially every Roman province and spread his largesse throughout them all. The associated archaeological and epigraphical records corroborate the historical tradition that sees Hadrian as the most important and most generous patron and builder that the Roman Empire ever knew (Boatwright 2000: 3–17, 108–171; Fraser 2006). But we are left with few names or details of specific architects working in his immense program.

While the treasury clearly spent a great deal of money on these projects across the Empire, there are also plenty of records of individual benefaction paid for with personal funds, so private euergetism of the sort demonstrated by the younger Pliny continued. Towns also paid for buildings, and reconstructions of them, themselves through taxes, rental, or sale of land or property that belonged to the town, and payments for offices from local magistrates (Duncan-Jones 1985: 28–29). Throughout the reigns of Hadrian's two successors – Antoninus Pius (ruled 138–161 CE) and Marcus Aurelius (ruled 161–180 CE) – the systems both of imperial patronage throughout the Empire and of encouragement of individual private patronage are clearly in place and indeed overlap in several cases. Antoninus gave public benefactions to many cities throughout his long reign and at the same time constantly encouraged private architectural gifts (Thomas 2007b: 6–10, 70–90). His strong encouragement of private benefaction is attested by two telling examples. In 145 CE, he wrote a letter to the city of Ephesus praising the munificence of one Vedius Antoninus who had provided public works and splendid buildings to the city rather than spectacles and distributions and prizes for games, a focus which the emperor found highly praiseworthy (*SIG* 850; Frere 1985: 34–35). An especially good example is provided by the equestrian Marcus Gavius Maximus who became prefect of the praetorian guard in 138 CE. Although his social status was inferior to most of the officials around him, he seems to attempt to compensate for that lack by erecting the magnificent Forum Baths at Ostia around 150–160 CE. This was a highly original,

elegantly adorned piece of public construction and fine architecture that was intended to announce Gavius's own prominence and good taste (Thomas 2007b: 76–78). Similar examples of encouragement of such *aedificatio* as a means both to the adornment of imperial cities and to increasing or reinforcing the status of those who provided it abound in the second century CE and on into the first half, at least, of the third, but as we move further down in time, the figure and the name of the individual architect who received this patronage, designed and erected the buildings it was intended to produce, and – in the last analysis – ornamented the Roman Empire, fade away entirely. As the Empire aged, the Roman architect was subsumed by Roman patron and emperor.

GUIDE TO FURTHER READING

Essential to further investigation of this topic are Anderson (1997) who investigates the social and functional roles of Roman architects, Eilers (2002) who well demonstrates the system of private patronage that included architecture, and Thomas (2007b) who investigates both public and private patronage of architecture in the second century CE (primarily but not exclusively in Africa and Asia Minor). The epigraphical evidence for named Roman architects is collected by Donderer (1996), while the evidence for Hadrian's vast building patronage is amassed by Fraser (2006) and discussed in more depth by Boatwright (2000). MacDonald (1982a), Gros (1996a; 2001), Wilson Jones (2000b) and Knell (2004) provide fascinatingly diverse interpretations of much of the physical and textual evidence for Roman architecture. The articles by Duncan-Jones and by Frere in Grew and Hobley (eds.) (1985) are concise and useful though sometimes hard to obtain.

CHAPTER EIGHT

Plans, Measurement Systems, and Surveying: The Roman Technology of Pre-Building

John R. Senseney

Introduction

Architecture precedes building. This is the conviction of Vitruvius, who was the first Roman to theorize architecture. According to him, *architectura* requires *decor*: a collection of practical considerations of tradition, function, and natural siting that must be established before construction. Architecture also requires *distributio* (οἰκονομία), referring to the natural and financial resources that architects must secure prior to building. In addition to *decor* and *distributio*, architecture consists of a set of graphic procedures and formal principles of Greek origin – ordering, positioning, visual harmony, and modular commensuration – that are embodied by ground plans, elevations, and perspective drawings (*De Arch.* 1.2.1–9).

After defining architecture according to such methods and principles, Vitruvius tells us that, in addition to building, architecture includes the arts of timepieces and machinery (*De Arch.* 1.3.1). What unites these three branches – building, chronometry, and machinery – under the single heading of architecture, and at the same time establishes the sequence of architecture before building, is nature. The turning mechanism of the universe sets forth the relationships of heavenly bodies by which time is measured (*De Arch.* 9.1.2). This cosmic mechanism is itself the creation of *natura* as architect (*De Arch.*

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9.1.3), to whose precedents architects turn as their models for the machines that help to raise their buildings (*De Arch.* 10.1.4). Similarly, the architect of a temple brings forth modular commensuration (*symmetria*) and "good form" or visual harmony (*eurythmia*) as nature's principles of good design found in the ideal human body (*De Arch.* 3.1.1–4). As an ordering power in nature, then, architecture already underpins the universe. Planning with the prescribed graphic methods manifests the architect's vision in accordance with the authority of nature. Once realized on the plane of the drawing surface with the architect's tools and techniques of graphic construction, the surveyor's instruments and procedures project this vision into the final measurements of the monumental building on the plane of the earth. The following chapter offers an overview of this Roman architectural process that largely determined form and experience before construction even began.

1. Models and Plans

In addition to Vitruvius's detailed theorizing of the creative process in architecture, other literary references to the tangible aids for the design of Roman buildings provide useful insights. During Julius Caesar's Gallic Wars and his civil war against Pompey, Vitruvius seems to have served under Caesar as a military engineer and staff architect (Rowland and Howe 1999: 5–6). Writing in the time of Hadrian, Suetonius tells us that at the outbreak of civil war in 49 BCE, Caesar disguised his intention to march towards Rome by pretending to go about everyday business by examining a *forma* ("figure") of a gladiatorial school that he wished to build (Suet. *Iul.* 31), and therefore some kind of graphic or three-dimensional architectural model that planned a building or complex at a reduced scale. Suetonius's story suggests that scale models were an expected part of Roman architectural planning during this early phase of Vitruvius's career, and Cicero's similar references confirm Suetonius's later account about the use of *formae* in architectural planning of the Late Republic (*Fam.* 2.8.1; *QFr.* 2.5.3).

One should not take such models for granted. In traditional Greek practice before the Hellenistic period, architects provided not reduced-scale models, but rather 1:1 templates and models for individual features like triglyphs, capitals, and the like (Coulton 1977: 54–58; Hellman 1992). Instead of graphic models at reduced scale (as in ground plans or elevation drawings), Greek architects issued elaborate *written* descriptions (Coulton 1977: 54–55). This combined method of full-scale models with verbal specifications was sufficient for the planning of columnar buildings with simple rectilinear plans, as in temples and stoas. Yet by the Hellenistic period, the convincingly graphic character of gridded underpinnings like those discernible in the temples of

Hermogenes represents a common feature of planning through design on a drawing surface. On the testimony of Cicero and Suetonius, then, it would appear that the abstract Hellenistic concept of envisioning built forms by way of reduced-scale models may have been established in Roman contexts by the earliest phase of Vitruvius's architectural career in the era of the Gallic and civil wars. Taken alone, however, this evidence does not clarify the media of scale models used in the planning process (graphic versus plastic), the formal character of such models, nor their possible Italic (and not just Hellenistic) heritage prior to the late republican years corresponding to the career of Vitruvius.

Before the Middle Republic (264–133 BCE), the evidence for graphic models used in architectural planning in Etruscan and Roman Italy is ambiguous at best. Despite different materials and building techniques, Etruscan temples, houses, and rock-cut tombs featured the same simple, prismatic, and rectilinear qualities of much of Greek architecture, and similarly would not have required graphic explorations of form. It is claimed that individual Etruscan buildings – as in temples and other structures within a sanctuary – relate to one another geometrically in ways that may reflect scale drawing with the compass and straightedge (Invernizzi 2000: 268; 2001: 35, Figures 30–34). This claim does not bear rigorous analysis, however (Senseney 2011: 207–208). In addition, there is insufficient evidence for grid-based planning in Etruscan cities, a practice that may or may not have included scale drawing (see Lewis 2001: 120).

More tangible evidence appears in the form of three-dimensional models. From Chiusi comes a cinerary urn of the second century BCE in the Archaeological Museum in Florence, only 50 cm in height but detailed with the features of monumental structures: coursed masonry, pilasters, an arched doorway, and a pediment (Sinn 1987: 93; Haselberger 1997: 84, Figure 8). Despite its funerary function, the object at least reflects the concept of small-scale architectural representation in plastic form. Nonetheless, its purpose outside the context of planning captures only a move in the opposite direction from the building process: an imitation of a palatial residence to create a suitable container for the remains of the deceased. It therefore relates to long-standing central Italian traditions of house-shaped urns dating as far back as the Villanovans in 1000 BCE. Architectural representation does not equate to practices of planning, and in this sense the three-dimensional architectural models of the Etruscans are no different from those of the Greeks, for whom such representations traditionally embodied funerary objects, votives, and dedications (Haselberger 1997: 83–87).

As opposed to the Etruscan material, Roman three-dimensional models may show a bit more promise as aids to the processes of planning and construction. Although Roman sources do not describe such models, two objects

in particular have received attention as possible candidates. One is a marble model of a tetrastyle, pseudo-peripteral podium temple (width ca. 40 cm) of the first century BCE discovered at the Collegium of the Augustales in Ostia Antica, missing its superstructure and preserved to the level of its column bases (Squarciapino 1962: 18, inv. no. 189; Pensabene 1997). The second is a limestone model of the adyton of the "Great Temple" at Niha near Baalbek, Lebanon (width ca. 60 cm), discovered next to the front steps of that temple and dating to the second century CE. The relationship of the former to a specific built structure is unknown, but the latter relates to the adyton of the building where it was found. Furthermore, the upper surface carries a small inscription explicitly identifying the object as a "tracing out in advance (προκέντημα) of the adyton (ἀδύ[του])."

These two scant surviving examples do little to support the primacy, frequency, and practicality of such models, however, and at most these objects represent a late stage in a creative process that began with drawing. In the case of the objects from Ostia and Niha, the medium of both may suggest limited usefulness in architectural design. Carving from hard stone does not lend itself to fluid explorations of spatial relationships, and the resulting model would be too heavy to easily wield on site. Scaling off three-dimensional forms would also be unnecessarily complicated. Instead, these objects would have reflected the graphic processes that projected them in the same manner as a completed building, and were at best secondary in the conceptualization of the built form. Still, the skepticism expressed here about the general importance of models like these to the creative process is not commonly held, and one may speculate that the objects from Ostia and Niha may reflect more widespread Roman use of scale models in wood. Even if such were the case, however, the chief purpose of ancient three-dimensional models likely would have been as final visualizations, as in modern practice. The main explorations of form in the creative process itself, on the other hand, would have been better served by the cheaper and more easily manipulatable exercise of drawing, upon which the forms of such models would have depended.

All in all, the rarity of surviving reduced-scale, three-dimensional models as convincing aids to building, their general impracticality in terms of portability and scaling, and the lack of explicit reference to them in primary sources elicit a focus on the more substantial textual evidence for drawn plans. When Suetonius or Cicero referred to *formae*, they likely had in mind drawings as the primary means of envisioning architectural form in ancient Rome. As opposed to plastic models, such references to drawings would be consistent with Vitruvius's emphasis on the importance of drawings as the means by which buildings acquire principles of good design, as well as his use of them to illustrate his treatise (Frézouls 1985; Haselberger 1989). In his *Attic Nights* of the second century CE, Aulus Gellius tells of architects presenting Cornelius

Fronto with plans for a bath complex (19.10.2–3). The term he uses for these is *species*, the same Latin term that Vitruvius uses to translate the Greek term (ἰδέαι) for ground plans, elevations, and perspective drawings (*De Arch.* 1.2.2). Furthermore, Gellius specifies that these *species* were *in membranulis*, "on parchments." No Roman scale plans survive in this ephemeral medium, but Gellius's story bolsters Vitruvius's detailed account and suggests a suitable drawing surface with advantages of both size and portability (Coulton 1977: 53; Wilson Jones 2000b: 52).

Despite the indications for reduced-scale drawing found in these texts, the direct physical evidence for them remains nonetheless thin. Unfortunately, the durability of ancient architectural drawings that do survive has been matched by our difficulty in discerning them. Architects executed these drawings on-site on the planar surfaces of stone masonry. Even in cases where such drawings are preserved, they are so difficult to detect that it is only in recent decades that archaeologists have discovered just how common a practice they represent. Originally, ancient draftsmen covered stone surfaces with pigment so that incised designs would stand out against their background, and the application of additional pigment provided a means of erasing. In unfinished temples in which the walls were never polished, or in cases where the drawing-covered faces of such blocks were built into the structure, these drawings remain barely visible. From the Greek world comes a marble block featuring an incised drawing of a pediment (ca. 50 cm in width), built into the walls of the Temple of Athena Polias at Priene of ca. 340 BCE and hypothesized as a reduced-scale sketch of that temple's pediment by its celebrated architect, Pytheos (Koenigs 1983: 165–168). In a Roman context, a drawing on masonry of the first century CE is built into the amphitheater at Pola (Pula), Croatia (Gnirs 1915: 41). It represents a span of five arches of that structure's arcades in an exercise of the compass and straightedge measuring only ca. 20 cm in width. Were it not for the literary evidence discussed below, rare examples such as these could hardly attest to scale drawing as a common part of planning in the classical world.

Preserved with somewhat greater frequency than scale drawings are on-site classical drawings of individual features at *full* scale. Incised into stone, these "blueprints" depict features at their anticipated size, allowing for a 1:1 transfer from the drawing to the contours of pediments, cornices, arch voussoirs, columnar shafts, bases, and capitals. The most famous building for which such blueprints survive is the Pantheon, whose pediment has been recognized as incised into the marble pavement in front of the Mausoleum of Augustus (Haselberger 1994). The most concentrated collection is found at the colossal Didymaion, covering around 200 m^2 of the adyton's walls (Haselberger 1980; 1985; 1991; 1999a; 1999b). Here, construction began in the fourth century BCE and remained incomplete when abandoned during the imperial era, a circumstance that explains why these drawings were never polished out of

existence. An exploration of scale planning as Vitruvius knew it, as well as its relationship to measuring and surveying, best begins here.

2. Scale Planning and the Shape of Order

An overlapping trio of drawings at Didyma represents the earliest discovered Greek blueprints (Figure 8.1, top). A review of the details of these drawings is necessary for our understanding of general principles of scale planning, measurement, and commensuration in Greek and Roman architecture. Executed with the compass and straightedge by an architect sometime

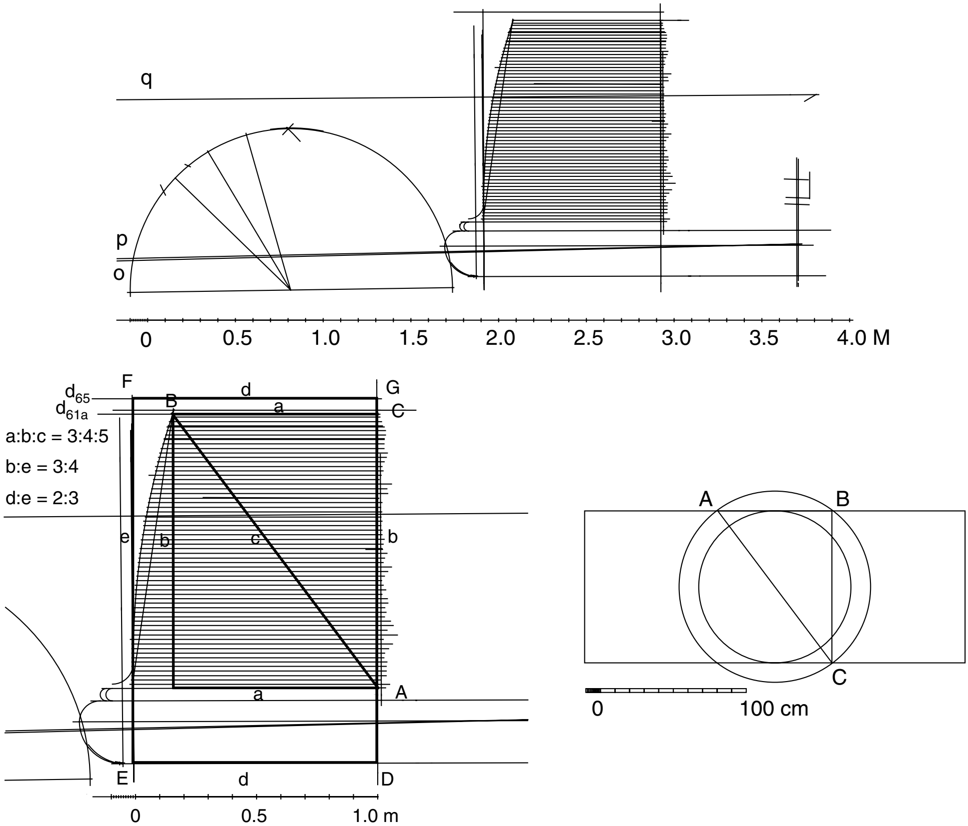


Figure 8.1 Blueprints and geometric underpinnings at the Didymaion. Top: The three restored blueprints discovered on the adyton walls, ca. mid-third century BCE. Bottom: Restored vertically compressed blueprint for generating entasis, showing main proportional relationships with Pythagorean triangle *ABC* (left), and restored Ionic capital shown from below with underpinning of Pythagorean triangle *ABC* according to Gruben (right). *Source*: Senseney, top and bottom left after Haselberger 1980: fig. 1; bottom right after Gruben 1963: 126.

before the monumental columns of the Ionic order were erected in the middle of the third century BCE, these Hellenistic blueprints graphically construct the entasis, base molding profiles, and fluting of the columns. They include a 1:1 scale, full-length (ca. 18-m), horizontally drawn columnar shaft shown in section from its long central axis (*q*) to an inclined trajectory (*p*) connecting the outer profile of the lower radius to the narrower width at the top of the shaft, and an oscillating line (*o*) representing the curved outer profile of the shaft's entasis, which culminates in a maximum rise of just under 5 cm beyond *p* near the midpoint in the column's elevation. Therefore, only half of this recumbent shaft is shown lengthwise from its central axis to its curved outer profile below. In addition, there is an upright columnar shaft rising over its base moldings, which again represents half a shaft lengthwise from its central axis to a curved out profile. This shaft, however, is shown at 1:1 scale only in the horizontal direction and is vertically compressed into a rather squat-looking 1:16 scale. This use of reduced scale in only one direction allows the architect to construct the curved outer profile of the shaft's entasis as a compass-drawn arc (radius over 3 m) over its inclined trajectory from the wider lower radius to the narrower radius at the top. The result is an identical maximum rise near the midpoint as that found in the full-scale, horizontally drawn shaft. The third blueprint is a semicircular drawing indicating the radial divisions of 15 degrees for the 24 flutes of an Ionic column, shown in plan.

Lothar Haselberger, the discoverer of these blueprints, discerned how the reduced-scale and full-scale drawings of the shafts worked together to construct entasis. In the vertically compressed version, horizontal lines appear at distances equal to one dactyl (or "digit"), which in Greek measurement systems is equal to one sixteenth of a foot. In the blueprint's 1:16 scale, therefore, each marked distance of one dactyl represents a foot at full scale. At each horizontal line in the elevation, therefore, the architect applied a pair of dividers to measure the horizontal distance from the central axis on the right to the arc on the left. Because the blueprint represents this horizontal distance at 1:1 scale, he transferred his radial measurement to the full-scale horizontal blueprint as a 1:1 correspondence. Yet because each dactyl in the compressed blueprint's vertical direction represents an entire foot, he placed his radius at a point along the horizontal drawing's elevation corresponding to measurements in feet rather than dactyls. In this way, the circular arc of the vertically compressed blueprint protracts into a highly elongated, elliptical arc represented by *o* in the full-scale blueprint, describing the subtle curvature of the columnar shaft yet to be built.

A newly published discovery about the vertically compressed blueprint is essential to our understanding of the methods and principles of ancient reduced-scale planning. As a rigorous metrological analysis supports, the

architect based *all* of the salient relationships of his drawing on a set of integral ratios (Senseney 2011: 189–190), including a 3:4:5 Pythagorean triangle *ABC* (Figure 8.1, bottom left). This underpinning would repeat the same archetypal form that Gottfried Gruben (1963: 126–129) observes as the basis for composing the relationship between the upper shaft diameter and the echinus of the Ionic capitals of the archaic precursor to the Hellenistic Didymaion (Figure 8.1, bottom right). In addition to these arithmetical relationships, there is a modular underpinning as well. Pythagorean triangle *ABC* is itself an 18:24:30 expression of the module embodied by the maximum rise of the shaft's entasis above the tapering trajectory from the shaft's lower to upper radius. Vitruvius notes that this quantity of the maximum rise of entasis should indeed express a deliberate relationship with other features of an Ionic column, suggesting a 1:1 correlation with the width of the shaft's fillets (*De Arch.* 3.5.14). The blueprint at Didyma underscores how such modular and proportional relationships were first worked through at the level of drawing.

In a remarkable way, what one confronts at Didyma is a surviving graphic demonstration of the Greek procedures and principles that, according to Vitruvius (*De Arch.* 1.2.1–4), comprise *architectura* (Wallace-Hadrill 2008b: 147; Senseney 2011: 142–172). As embodied by drawings as the *species* of design, architecture consists of the procedures of *ordinatio* (τάξις) and *dispositio* (διάθεσις), and the principles of *symmetria* or modular commensuration, and *eurythmia* or "good form." *Ordinatio*, "ordering," is established through quantity (ποσότης), which itself is achieved through modules expressed by members within the work itself, as well as the execution of the entire work as an arithmetical correspondence with the individual components. In the blueprint at Didyma, ordering is achieved through expressing the maximum curvature as the module, which in turn sets up whole-number proportions that underpin all the parts of the drawing. *Dispositio* is design proper, conceived in terms of composing by way of a positioning (*collocatio*) of features within the work in a manner that is *aptus*, "fitted." As the blueprint suggests, the aspect to which features are "fitted" in design is the *ordinatio* itself; the shaft's height, lower and upper radii, and starting and ending points of curvature are all *exactly* fastened to the modular and arithmetical underpinning. The entire composition expresses *symmetria* and *eurythmia*, with the latter especially embodied by the blueprint's 1:16 protraction in the rising form of the completed columnar shaft as a pleasing, subtly curved 1:9 expression of the relationship between the lower column diameter and overall height. Here, then, is an actual demonstration of the classical tools, methods, and principles of planning that, together with *decor* and *distributio*, define architecture for Vitruvius in terms that explicitly relate to pre-building. One may clearly observe how the drawing at Didyma documents procedures formulated

in the "Vitruvian Man" composed with the compass and straightedge as nature's ideal model for temple design, in which the parts of the body express the figure's modular commensuration and the archetypal forms of the square and circle to which the outstretched hands and feet are fitted (Vitr. *De Arch.* 3.1.1–4).

Constructed graphically for the supine figure pressed against the plane of the ground, this inherent *ordinatio*, *dispositio*, *symmetria*, and *eurythmia* may be discerned for the long-lost ground plans through which ancient temples were envisioned. At Hellenistic Temple A of the Asklepieion at Kos (begun ca. 170 BCE), metrological analysis has shown that a 3:4:5 Pythagorean triangle like that found at Didyma established proportions grounded in modules (paving slabs) that fixed the locations of the cella and pronaos according to the kind of circular underpinning found in the "Vitruvian Man" (Senseney 2007; 2009). Just outside Rome during the Middle Republic, in ca. 160 BCE, this Hellenizing approach to planning appears in the Temple of Juno at Gabii, where again the archetypal form of a 3:4:5 Pythagorean triangle provides the basis to which the locations of features are fastened (Figure 8.2, top). In addition, the lower column diameters, equal to four Roman feet of 0.296 m, express the module of the Temple of Juno's *symmetria* (Almagro-Gorbea and Jiménez 1982: 90, 102–104).

Also as one finds at Kos, the specifically graphic nature of this planning method results in the feature of axial symmetry that organizes the complex of the Gabine sanctuary as a whole (Figure 8.2, bottom). Perhaps this basic characteristic of Roman design that culminates in the imperial *fora* is born of a way of conceiving spatial relationships according to graphic planning. Feasibly, the habits of ordering architectural forms graphically may have begun in the design of individual features at full scale (Figure 8.1, bottom right) before being applied in features at partially reduced scale (Figure 8.1, bottom left) and completely reduced scale (Figure 8.2, top). The application of such graphic conceptions to entire architectural complexes (Figure 8.2, bottom) may represent the final step in this development. In cases like those at Gabii, the technology of pre-building shapes whole environments. The leveling of foundations on the plane could be checked with the A-level or the chorobates (Adam 1982: 1029; 1994a: 18–19, 41–42; Lewis 2001: 27–35), and the architect's plan could be set out on the ground by means of cords and stakes (Taylor 2003: 64–66). The practice of large earth-moving projects thereby transfers the plane of the drawing board to the newly formed plane of the ground, enabling the abstract ordering of graphic construction with the compass and straightedge to be cast into space.

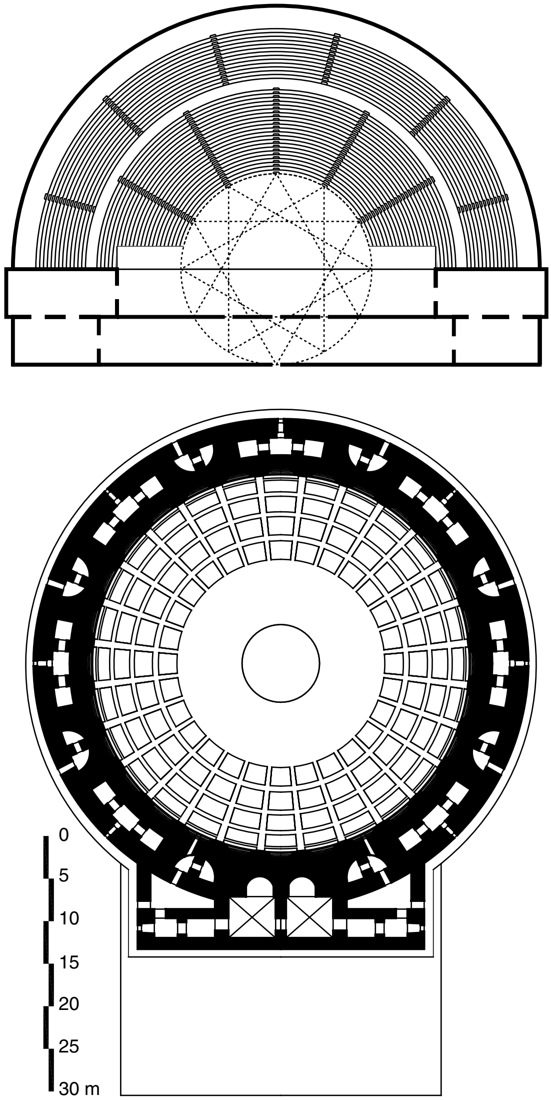


Figure 8.2 Circular and radial designs. Top: The Roman theater as described by Vitruvius (*De arch.* 5.6.1–4). Bottom: Pantheon, Rome, 120s CE. Plan of level III showing radial pattern of coffering of the intrados. *Source*: Senseney. Pantheon after Boyle, Scutt, Larason Guthrie, and Thorbeck, in MacDonald 1982a: pl. 103.

This projection takes place in an appreciable way in the theater as the "place for seeing (*thea*)," in this case on a curved plane recalling the inside of a sphere. Vitruvius is explicit in underscoring the indispensable role of graphic construction for the circular, radial form of the Roman theater (Figure 8.3, top), in which the design is fitted to an ordering, circumscribed set of triangles.

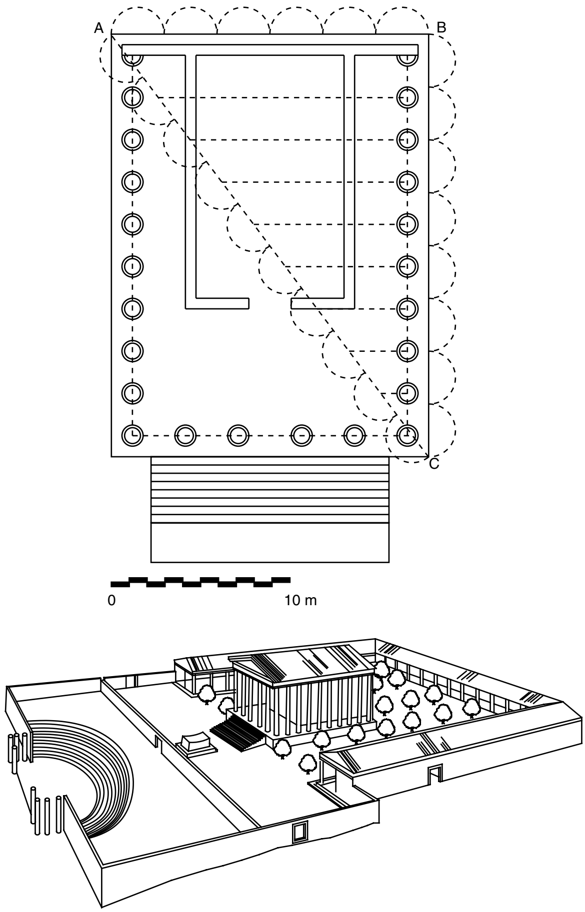


Figure 8.3 Sanctuary of Juno, Gabii, ca. 160 BCE. Top: Restored ground plan of temple showing the use of Pythagorean triangle *ABC* in its design. Bottom: Restored aerial view. *Source*: Senseney, after Almagro-Gorbea 1982: figs. 133 and 132.

This method is a variation of the Greek theater, in which the design is affixed to a circumscribed set of squares that results from the same graphic algorithm as that of the later Roman theater (Ferri 1960: 192–194; Gros 1994: 63). In this composition, the radial layout of aisles projecting out from a central point captures the idea of the sightlines of the audience, which vanish on a central point. In this way, the theater is shaped as a ground plan according to the graphic formula of *skenographia* or linear perspective, one of the three *species* or *ideai* of design along with elevation drawings and an invention for theatrical backdrops in the fifth century BCE when Greek theaters were traditionally rectilinear rather than round. As in the case of the archaic-period capitals (Figure 8.1, bottom right), however, the circular, radial form likely predates even *skenographia*. It is preserved in the construction for fluting in the

blueprints at Didyma (Figure 8.1, top) and other relatively late, rare surviving examples. Dating perhaps as far back as the late fifth century, the circular, radial form of *skenographia* and column fluting was applied as a plan that ordered a space for communal vision, making it especially appropriate that *idea* relates to the infinitive "to see" (ἰδεῖν, aorist infinitive of ὁράω), just as Vitruvius preserves in his translation *species* (from *specio*, "I see"). The theater's graphically constructed form served the diagram of the zodiac as the graphic image that envisioned the spherical structure of the universe as a circular, radial image, and similarly Vitruvius evokes the theater's form of a rising circular stairway in his description of the circuits along which the celestial bodies travel (*De Arch.* 9.1.5). Later, the theatrical form of the radially divided circle would come to serve the expression of nature's cosmic order in the coffered spherical intrados of the Pantheon as a patent exercise of the compass and straightedge (Figure 8.3, bottom), providing a structured, geometric setting for the movements of the solar spotlight from the oculus. In this way, the fluid potential of *opus caementicium* enabled the shaping of space according to the visions produced by the compass and straightedge as the age-old tools belonging to the technology of pre-building.

3. Measure and Commensuration

Plato's archetypal Forms or Ideas that represent the ultimate, transcendent reality of the universe share the same term (ἰδέαι) with what, according to Vitruvius, the Greeks used to refer to their designs in the planning process. In the *Republic*, Plato recognizes that it is usual practice for a craftsman to look upon the *ideai* and then imitate them in the made object (596b), suggesting that it is Plato who takes his term from craftsmanship and not the other way around. He extends the metaphor to the Divine Craftsman of the *Timaeus*, who follows graphic models to build an underlying sense of order into the turning cosmos (*Ti.* 27d–28a, 28c–29a, 48e–49a), just as Vitruvius would later describe nature as the architect of this mechanism. For Plato, observation of the celestial bodies leads one to the intelligibility of number through measuring the passage of time. For Vitruvius, in turn, this cosmic mechanism sets forth the motions that enable the measurement of time through the making of the contrivances of Book Nine described under the heading of *architectura*. In this ordered architectural motion of the universe, measurement unifies time and space, underscoring the *idea* as the model that establishes this ordering (τάξις, *ordinatio*) in the first place. This is why Plato elevates the *techne* of buildings above all other *technai*: its tools (compass, straightedge, set square, plumb line, and peg-and-cord) enable a "scientific" (τεχνιχωτέραν) approach in the precision of measurement (*Phlb.* 56b–c). In other words, the builder's

virtue centers on his ability to imitate precisely the authoritative *idea*, building its ordering measurements into the phenomenal world.

Both the Hellenistic blueprints for the columnar shafts at Didyma and the restored ground plan of the middle republican Temple of Juno at Gabii (Figure 8.1 and Figure 8.2) illustrate this centrality of measurement in the planning of classical architecture. At Didyma, the ordering element of the blueprint is the Attic or Cycladic foot of 0.296 m, which divides into 16 dactyls of 1.85 cm each and forms the basis for the 1:16 expansion from the compressed vertical blueprint to its recumbent counterpart at full scale and, finally, the precise imitation of all measurements and proportions in the completed work. In various monuments, the Attic or Cycladic foot generally ranges between 0.294 and 0.296 m. There are other foot units in the Greek world as well, such as the Doric foot (0.325–0.328 m) and the Samian or Ionian foot (0.348–0.350 m). In all Greek systems, the foot commonly divides into 16 dactyls, and the cubit or elle represents one and a half feet and similarly divides into 24 dactyls. As in Greek foot measurements, the Roman foot shows variation (generally 0.294–0.297 m), but with a mean of around 0.296 m, therefore approximating an Attic or Cycladic foot. Again like a Greek foot, it divides into 16 digits (*digiti*), but it can also divide into 12 inches (*uniciae*). This Roman system of measurement underlies the Temple of Juno at Gabii, whose measurements return an average foot unit of 0.2955 m (Almagro-Gorbea and Jiménez 1982: 88–89). The systems of measurement in the Greek and Roman world may be summarized as follows:

Greek Measurements:
1 stade = 400 cubits = 600 feet
1 *schoinion* = 100 cubits = 150 feet
1 *plethron* = 100 feet
1 fathom = 6 feet = 4 cubits
1 cubit = 1 ½ feet = 24 dactyls
1 foot = 4 palms = 16 dactyls
1 span = 3 palms = 12 dactyls
1 palm = 4 dactyls
1 dactyl = ¼ palm = 1⁄16 foot = 1⁄24 cubit

Roman Measurements:
1 mile = 1,000 paces
1 pace = 5 feet
1 cubit = 24 digits
1 foot = 16 digits = 12 inches
1 inch = 1⁄12 foot
1 dactyl = 1⁄16 foot = 1⁄24 cubit

Just as measurement was important to the completed form of the Didymaion's columns and the spatial relationships of the Gabine temple, so too was modular commensuration or *symmetria*. Embodied by a feature built into the work, the module gives visual expression to measurement, and it, too, embodies considerations worked through at a graphic level during the planning stages. As recounted in the previous section, the maximum curvature of the entasis establishes the module in the Didyma blueprint to form the underlying Pythagorean triangle as an 18:24:30 commensuration, just as the lower column diameter at Gabii expresses that temple's Pythagorean triangle as a 15:20:25 commensuration. In this regard, Vitruvius's comment that the Greeks took their measurements from the human body (*De Arch.* 3.1.5) becomes significant. Composed by nature, the body is the model for *symmetria* in the temple (Vitr. *De Arch.* 3.1.4), an idea given concrete expression in a Greek figural relief from Salamis corresponding to standard measurements of the parts of the body (Wilson Jones 2000a). In the "Vitruvian Man" that describes this ideal model as designed by nature, the body is scaled down to a graphic construction with the compass and straightedge. With the figure's bodily members flattened onto the plane of the drawing surface so as to be inscribed within a two-dimensional square and circle, the model is abstracted as a ground plan, and therefore an *idea*, a graphic vision. As such, it implies its readiness to be scaled up and projected onto the larger plane of the earth through a translation of its modules and the related commensurations of its geometry into the spatial measurements of feet, cubits, and the like. Through this projection, the ordering principles of nature – and therefore architecture – shaped the built world according to the methods of graphic planning.

4. The Shaping of Ordered Space

As opposed to measurement on the drawing board, terrestrial measurement in the pre-building process fell to a different kind of expertise. Writing in the middle of the first century CE, Columella remarked that although architects grasp the principles of measurement, they leave the measurement of land to others (*Rust.* 5.1.3–4). Despite Vitruvius's interest in the subject, he knew little about it (Lewis 1999; 2001: 33–35). Instead, this was the domain of the *agrimensores*, "land measurers," the Roman surveyors whose practices built upon the theory of Greek *geometres* or *geodaistes*, and are compiled in the *Corpus Agrimensorum*. Although their training and activities were different with respect to architects (Dilke 1971: 47–65; Cuomo 2007: 103–130), their art was an indispensable part of a shared process.

What unites surveying with architecture is a progression of differing but interdependent tools and techniques employed by architects and surveyors in the technology of pre-building (see Lewis 2001: 19–22). Measurements from

a drawn plan could be scaled up to final dimensions on-site with tools like the Greek surveyor's *schoinion*, a fiber cord of 100 cubits, or, more rarely, the *halysis*, a chain of the same measurement. Shorter distances could be measured out with the *kalamos*, a measuring rod of various sizes. Similarly, Roman surveyors wielded the *decempeda* or *pertica*, a rod of 10-foot length, whose terminus was fitted with a bronze cap with divisions in inches or dactyls. As opposed to the Greek use of cords over longer distances, Roman surveyors leapfrogged a pair of these rods front-to-back, resulting in measurements of 10-foot units as seen in the 60 by 80 foot measurement of the podium at Gabii, for example (Almagro-Gorbea and Jiménez 1982: 88–89).

The seamlessness of this progression from architectural drawing to surveying may be appreciated through its focus on vision shared with astronomy, which revealed the visual, and, for Vitruvius, architectural, order of nature (*De Arch.* 9.1.1). In Roman surveying, the instrument for sighting was the *groma*, which may have been of Greek origin (Lewis 2001: 120–124). As best as we may presently reconstruct its form and use, it consisted of a vertical rod with a bracket supporting a horizontal cross, from which plumb lines hung (Figure 8.4, top). The surveyor projected his sightline through opposite plumb lines towards vertical rods held by assistants, and 90-degree angles could be turned over any point by virtue of the perpendicular alignment of the cross's arms. In the Greek world even in Roman times, the function of the *groma* was instead served by the *dioptra* (Lewis 2001: 36–108), in its most basic form consisting of a disc with its diameters drawn to meet at right angles, and fitted with a sighting tube that pivoted in the disc's center (Figure 8.4, bottom). Sighting through the tube could thereby establish right angles, and all sorts of angular measurements could be taken in discs fitted with a protractor. The disc was adjustable to set in either horizontal or vertical mode, thereby allowing for measurements of altitude, which was especially useful for astronomy. In the first theorem of his *Phenomena* of the late fourth century BCE, Euclid demonstrates the geometry of the universe through a description of a *theoros* ("viewer") who operates a *dioptra*, the standard Greek surveying instrument. Euclid's *theoros* looks through the sighting tube towards the circle of the horizon first towards the east and then, turning in the opposite direction, towards the west. As he does so, his line of vision connects with the shared axis of the points at which constellations on opposite sides of the zodiac simultaneously rise and set. Euclid represents the crossing of these shared axes at the central point within a compass-drawn circle, which corresponds to the point on the earth in the center of the revolving cosmos where the *theoros* stands. The result is a radially divided circle like the kind architects and masons drew in the construction of column fluting, as preserved in the semicircle of the blueprint at Didyma (Figure 8.1, top). It is also the graphically conceived cone of vision that Euclid theorizes in his *Optics*, in which visual rays like those of the *theoros* projected through the *dioptra* converge at a central vanishing point

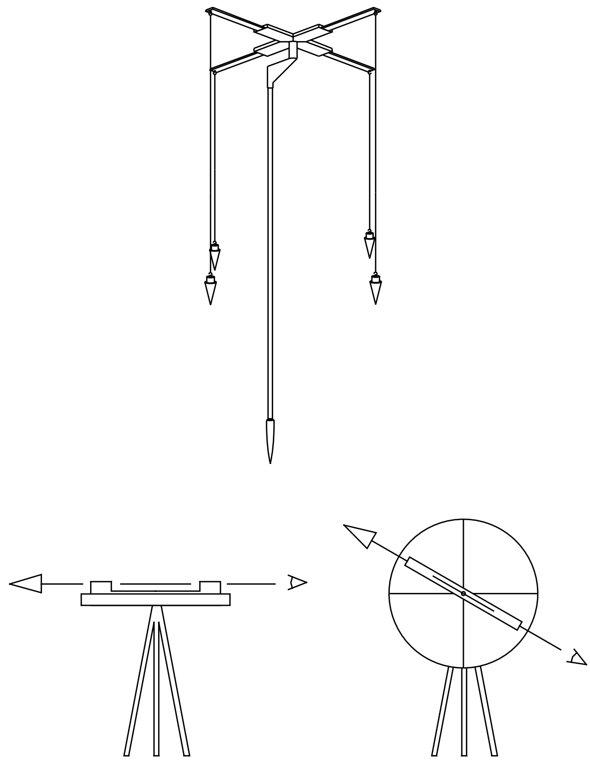


Figure 8.4 Sighting instruments for ancient surveying. Top: Reconstruction of an ancient Roman *groma*. Bottom: Schematic reconstruction of the *dioptra* with axes of vision projected through sighting tube in horizontal mode (left) and vertical mode (right). *Source*: Senseney.

in the manner of *skenographia*, which Vitruvius describes as radial lines converging on the center of a compass-drawn circle (*De Arch.* 7.praef.11).

In Euclid's cosmic diagram, then, the ordering geometry of nature unifies with the visual perception of it as theorized through optics, and as constructed graphically for *skenographia* – one of the *ideai* of architecture – that captures the spatial dimension of vision. Yet as a circle with radii projected from the central point in the universe where the *theoros* stands, Euclid abstracts his spatially protracted axes of vision into a diagram shown from outside the cosmos. Similarly, an architect designs the "place for seeing" as a circular, radial scale ground plan viewed from the disembodied perspective of directly above (Figure 8.3, top). Through the surveyor's instrument, the trajectory of vision in space reduces to become Euclid's graphic *idea*, and in the reversible progression, the graphic composition of an *idea* extends into space through the *dioptra* or *groma*. In this way, the surveyor projects the architect's vision onto the plane of the earth, imparting a spatial framework for the built work's imitation of the architect's *idea* before a stone is even laid.

GUIDE TO FURTHER READING

Important recent studies bringing together issues related to planning, metrology, surveying, and building include Adam (1994a), Wilson Jones (2000b), Taylor (2003), and Wright (2009). The most essential recent overview of classical architectural models and plans in particular is in Haselberger (1997). For an accessible overview in English of the Didymaion's blueprints, see Haselberger (1985). A theoretically oriented treatment of the history and function of Greek scale drawing and linear perspective, as well as their importance for Vitruvius's formulation of the discipline of architecture, is in Senseney (2011). A thorough review and analysis of ancient measurement and design is in Wilson Jones (2000a). An excellent and highly detailed study of classical tools, practices, and measurement systems is in Lewis (2001). For an English translation of the *Corpus Agrimensorum* along with an introduction to central issues and commentary, see Campbell (2000).

CHAPTER NINE

Materials and Techniques

Lynne C. Lancaster and Roger B. Ulrich

Introduction

Analysis of the materials used for Roman architecture draws upon three sources of evidence, the largest and richest of which comprises the remains of Roman buildings that can be studied from all corners of the Roman world. The specialized ancient vocabulary associated with materials and their use can be recovered, in part, from literary references and inscriptions. A handful of ancient texts, most notably Vitruvius's *Ten Books of Architecture*, but also practical guides and encyclopedias, like Cato's *De Re Rustica* and Pliny's *Historia Naturalis*, provide descriptions and recommendations for particular processes and specific materials considered most suitable for given applications. Of less importance, only because of its relative rarity, is the body of ancient representations of architecture that include details of construction no longer visible in standing ruins or not mentioned in the ancient literary record, including buildings constructed of logs and sod, tents of leather, and timbered bridges. The media of such depictions include wall paintings, numismatic images, and relief sculpture that depict buildings and even the building process. They range from large public state monuments, the most important of which is Trajan's Column in Rome (113 CE) with its depictions of buildings and building activities (Coulston 1990; Thill 2010: 27–43), to the paintings preserved on the walls of private homes, and finally to an extensive body of funerary art in which members of a growing prosperous working class were able to depict themselves performing their professions: working a crane, building a brick wall, or applying a finish coat of stucco (Ulrich 2008: 35–61).

A Companion to Roman Architecture, First Edition. Edited by Roger B. Ulrich
and Caroline K. Quenemoen.

Multiple factors determined why a particular material was chosen for a particular application in a particular place (see also Section 10). They include funding, source of the material, tradition, nature of the workforce, level of technical knowledge, time available for the project, and exigencies of the application. It is hard to generalize about any of these; each is variable and each affects the others. A lavish project funded from the spoils of a military campaign was, from a Roman's point of view, essentially "free." A cheap and durable local building material would not carry the same status as an imported marble and therefore might be avoided. A conservative choice of material and technique, like a coffered wooden ceiling, was preferable for a civic hall over a concrete vault. The rush to build a defensive wall or span a river would impact the choice of materials and quality of construction regardless of the skill-set of the workforce. What does seem a clear trend was the tendency to build ever larger complexes in astonishingly brief periods of time with large labor forces of which only a small percentage of workers needed to be skilled craftsmen. Thus while no class of material seems to have ever fallen completely out of use, using concrete with any number of facings (fired brick being the most common in Roman Italy during the imperial period) became the dominant mode of construction in the West from the first century of the Common Era onwards.

1. Geography and Chronology: The Environment of Rome and Italy

The development of Roman architecture was heavily influenced by the local materials that were available in central Italy. The peninsula of Italy was formed as a result of subduction along its western coastline; as the east plate ground its way under the west plate, a chain of volcanoes was created along the Tyrrhenian Sea margin, the most famous of which are the still active ones of Vesuvius on the bay of Naples and Etna in Sicily. Rome is nestled on the Tiber River between two dormant volcanic districts: the Colli Albani to the south, home of the Latin kings of Alba Longa, and the Sabatini to the north, territory of the Etruscans. The subduction also caused the interior of the peninsula to be thrust upwards creating the chain of the Apennines down the center, which created for Rome a supply of limestone. The Tiber and its tributary, the Anio, are the result of the runoff from the Apennines eroding a path to the sea through the volcanic products of the Sabatini and Colli Albani. During the erosion process, new clays were deposited and old ones exposed that were used for making bricks and tiles. The Tiber and its tributaries provided transportation between Rome and the interior highlands as well as the port of Ostia on the Tyrrhenian Sea. Pliny (*HN* 3.5.53) even mentioned a lock system

used to collect the river water during dry spells to facilitate river transport from the inner highlands (Quilici 1986: 215 n. 92).

The volcanic environment provided a variety of different types of stones that the Romans exploited (Jackson and Marra 2006). They ranged from very hard and dense to very light and therefore provided stone with a variety of different material properties (see Sections 2 and 5). Moreover, within the volcanic stratification of the various explosions were layers of volcanic ash, *pozzolana*, which when mixed with lime and water produced a hard hydraulic mortar that was the basis for the manufacture of concrete. One non-volcanic building stone quarried outside Rome near Tivoli is travertine, a sedimentary stone of calcium carbonate formed in a basin supplied by the sulfur springs at Bagni di Tivoli (Mari 1983: 10–14, 360–370), which like others in the region were created by an extensive system of fault lines due to tectonic activity along the west coast.

The long narrow Italian peninsula bisected by the chain of the Apennines resulted in a variety of climatic conditions and altitudes within a fairly small distance, so that many different types of timbers and fibrous plants were available. Hemp used for rope was noted by Pliny the Elder (*HN* 19.173–4) as coming from Rosea in the Sabine territory. The lowlands around Rome harbored cypress, cedar, and holm oak, with higher altitudes (200–1,000 masl) providing deciduous hardwoods such as oak, beech, maple, and elm. At the highest altitudes were the evergreens, such as mountain pines and fir, which were highly valued for providing long straight beams that were both light and strong (Ulrich 2007: 263–268).

Italy also had metal sources, the most extensive of which were clustered along the west coast around Populonia, opposite the island of Elba, itself a great source for copper and iron. The mainland mines provided iron and lead, as well as tin and copper for making bronze, all of which were the source of Etruscan wealth. The area around Rome itself, however, offered little in terms of mineral resources (Davies 1935: 68).

2. The Development of Materials in Central Italy

Materials that were readily available and required the simplest of technologies to extract and use are to be considered the forerunners of the fully developed Roman architectural repertoire of the imperial period. The materials associated with these earlier phases, such as unfired (mud) brick, unshaped local stones, or unsawn ("round") wood were never entirely replaced by more sophisticated counterparts. Roman material use is a phenomenon of accretion, an introduction of new materials and techniques over time that reflects both increased access to new sources of material and new developments in

technology that permit raw materials to be shaped or employed in novel ways (e.g., the use of fired clay in different applications, from simple tiles of the seventh century BCE to the *tegulae mammatae* of the imperial period; see the Glossary).

Understanding the sequential introduction of materials can be helpful in assigning dates to buildings where other information such as inscriptions or ceramic evidence is lacking. In Rome, for example, the use of *cappellaccio* tuff was predominant in the sixth century BCE, but was phased out over the course of the fourth century BCE; concrete was not used before ca. 200 BCE. Building materials used at Pompeii have been traditionally associated since the nineteenth century with successive building phases of the city: a "limestone" phase, a "tuff" phase, and so on (Mau 1899: 40). New excavations at Pompeii and elsewhere continually reassess and refine dating based upon the criteria of material usage (cf., for example, Heres 1982; Slayman 1997).

Near the end of the ninth century BCE – or shortly thereafter – traces of dwellings on the Palatine Hill consist primarily of single-roomed structures built on a frame of unsawn wood: heavy vertical posts, the tallest at the center to support a ridgepole, and lighter timbers placed at intervals, horizontally, to create the framework of an open grid, the openings of which were filled in with woven branches and smeared with mud; the roof was covered with thatch (Figure 1.1 and Figure 9.1; Angelelli and Falzone 2001: 65–73). Evidence for these perishable materials consists of fired clay funerary urns representing the huts of the living (Bartoloni *et al.* 1987), small fragments of daub that bear the imprints of twigs and reeds (Puglisi 1951), and literary mention in Vitruvius (*De Arch.* 2.1.2; see Chapter 1). This "wattle-and-daub" construction was destined for long use, well into the imperial period, with applications ranging from walls and drainage lines to decking for bridges.

The increased use of iron for tools, particularly saws, adzes, and chisels, made the production of squared beams and planks practical; boards were used for the sheathing of roofs and for flooring; the latter facilitated the development of multi-storied structures (see Section 3).

Unprecedented economic prosperity in the seventh century is evidenced by the rich archaeological finds dated to this period. The building activities of the Etruscans and Latins of central Italy, the most notable beneficiaries of this boon, would have tremendous impact on the appearance of early Rome. Thicker walls of timber, stone, and sun-dried mudbrick allowed for large structures that could carry substantial loads. Builders used stone, at first unworked, for foundations, including "dwarf walls" to protect superstructures of pisé, mudbrick, or timber from damp (for Rome, Filippi 2004: 116). At Lavinium, a site not far from Rome, structures made of timber framing filled with packed stones and clay, all covered with a coating of plaster, anticipate

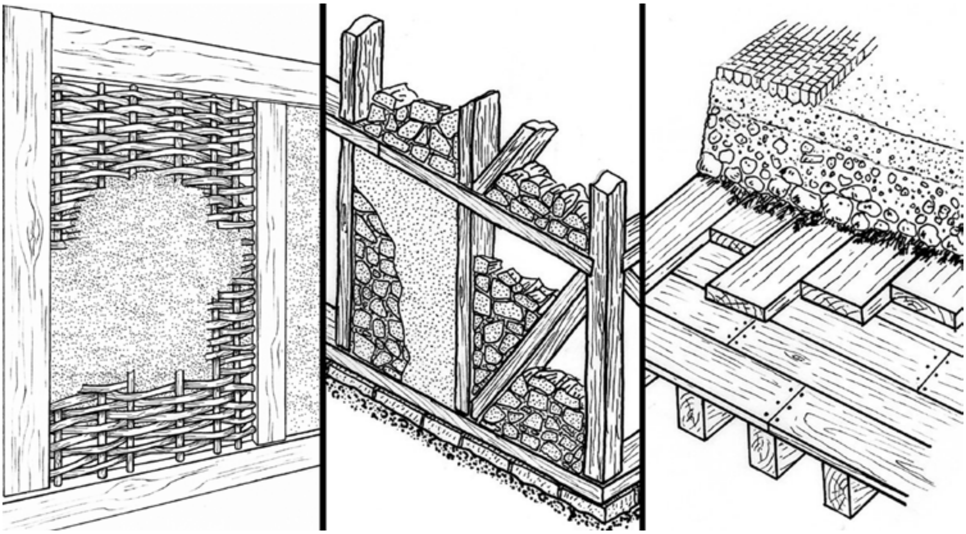


Figure 9.1 Framing materials in wood. Left: wattle and daub; middle: *opus craticium*; right: *contignatio*. *Source*: Dorothea and Roger Ulrich, after Guatoli 1981 and Rowland and Howe 1999.

the widespread use of "*opus craticium*" four centuries later (Figure 9.1; Guatoli 1981).

The stronger walls could support heavier loads including fired terracotta roofing tiles, a major innovation that follows closely the introduction of tiles in mainland Greece (Corinth, ca. 675–650 BCE). Roofing tiles from a possible "regal" residence recently found in the Roman Forum have been dated to ca. 650–625 BCE (Ammerman and Filippi 2004: 26; Ammerman *et al.* 2008; Winter, Iliopoulos, and Ammerman 2009; Winter 2009: 8). By the end of the century terracotta plaques were used to sheath exposed wooden architraves and cap the wooden shafts of early cylindrical columns (sheathing of thatch, bark, or wooden shingles continued throughout the imperial period). The adoption of roof tiles required unprecedented use of materials, energy resources, and specialized labor; the impetus to do so was probably due to factors of durability, status, and fireproofing.

Rome and its immediate environs are built upon bedrock consisting of soft volcanic tuff (see Section 1), first used in rubble form for foundations from the end of the eighth century, and later quarried into rectilinear blocks with primitive tools (Cifani 2008: 222–223). The resultant *opus quadratum* was used extensively from the sixth century BCE, including major projects like the podium of the Temple of Jupiter Optimus Maximus (traditional dedication date, 509 BCE; Figure 9.2). In Rome itself the tuff of the Capitoline and Palatine Hills was of a rather poor (due to its friability) type

known as *cappellaccio*; this, along with locally quarried, harder, reddish tuff was the only form of tuff used in Rome for nearly two centuries, until the fall of neighboring Fidenae (426 BCE) and Veii (396 BCE), both less than 20 km from Rome, opened up new sources. Veii was the more important of the two; its quarries produced a yellow tuff of moderate density commonly called "*Grotta Oscura*," used most famously in Rome's fourth-century fortification circuit, the so-called "Servian" wall. Its use declined by the second century BCE as better (harder, more durable) alternatives were discovered (Claridge, Toms, and Cubberley 2010: 39). The *peperino* from the Alban Hills (*lapis Albanus*), which is the densest of the local tuffs, makes its architectural debut by the mid-third century BCE, if not a little earlier (Holloway 1994: 80), and is in broad use by the second century BCE, a period in which a number of new quarries are exploited outside the city, such as the *peperino* at Gabii (*lapis Gabinus*) and the reddish tuff along the Anio river (Anio tuff), from where the stones could be transported to Rome by river barges.

Tuffs were quarried into rectangular blocks and are first used by Rome and her Latin neighbors (at sites like Antemnae, Ariccia, Lanuvium, and Ardea) for structures such as retaining walls, cisterns, temple podia, and fortification circuits. Throughout the period of republican use, it was popular to leave the exposed face only roughly finished, a form of "rustication." The *cappellaccio* blocks of the Temple of Jupiter's foundations and the later "Servian" wall's blocks of *Grotta Oscura* were laid in alternating rows of headers and stretchers, without clamps but with tightly fitted upper edges; the pattern of headers and stretchers was common for major foundations and piers, although narrow upper walls could be made with single rows of stretchers. A relatively rare form of ashlar construction, called "chequer-work," involved a latticework of squared blocks with an infill of rubble; Adam (1994a: 120) lists examples from Campania and Etruria ranging in date from the fourth to second centuries BCE .

Before the advent of true vaulting, walls of tuff were corbelled to cover the modest spans of tomb chambers and cisterns (the latter sometimes circular in plan, with a "beehive"-shape corbel). The first experiments with true vaults, using voussoirs of tuff with modest spans, and employed for below-grade applications (for covering drains and cisterns), appear on the slopes of the Palatine Hill in Rome as early as the sixth century BCE (see Section 15). Barrel-vaulted gates of tuff appear by the third century BCE (e.g., Falerii Novi, after 241 BCE).

By the end of the second century BCE, builders tended to combine stone types to take advantage of their respective qualities, to control costs (as those quarried locally were cheaper than imported stones), and to streamline the process of construction, as the superior quality of the imported stones, in



Figure 9.2 Masonry styles from pre-Roman and Roman Italy. From left: Cyclopean masonry (Rusellae); polygonal masonry (Pietrabbondante); ashlar (*opus quadratum*) masonry of *cappellaccio* tuff (Temple of Jupiter Optimus Maximus, Rome, shown at an oblique angle); drafted marble ashlar (Temple of Hercules Victor, Rome). *Source*: Ulrich.

terms of hardness, also made them more difficult to work. The elaborate Tomb of the Scipios (late second century BCE), for example, is built of *cappellaccio*, *Grotta Oscura*, Anio, and *peperino* tuffs and the Tabularium (ca. 80 BCE) has a facade of Gabine tuff (*sperone* or *lapis Gabinus*) and an interior built of Anio (Blake and Van Deman 1947: 135, 143). The homely surface of the hard tuffs was commonly covered with a layer of fine stucco to imitate marble construction (e.g., the tuff columns of the Temple of Magna Mater, second century BCE).

In the Latin towns and Roman colonies of the foothills of central Italy where soft tuffs were not at hand, masons quarried large, irregular blocks of limestone for the construction of town walls and other projects like cisterns and temple podia that required robust, durable construction. The earliest use of such rough-hewn boulders, described since the first half of the nineteenth century as "Cyclopean" (Dodwell 1834), was recognized as similar in construction to the massive Bronze Age walls of Mycenae and Tiryns (Figure 9.2). Soon these great amorphous stones were dressed to fit snugly to one another and finished to provide a uniform smooth face (Figure 9.2). The technique was labor intensive and required experienced masons. Nevertheless, such "polygonal" walls were set up over relatively short periods at colonial sites like Cosa (founded 273 BCE), falling out of use in Italy by the second century BCE.

The introduction of travertine to Rome from quarries near ancient Tibur (modern Tivoli, hence *lapis Tiburtinus*) in the second century BCE and the appearance of the first imported marbles mark important steps in the evolution of the Roman builder's repertoire. Travertine blocks were used sparingly

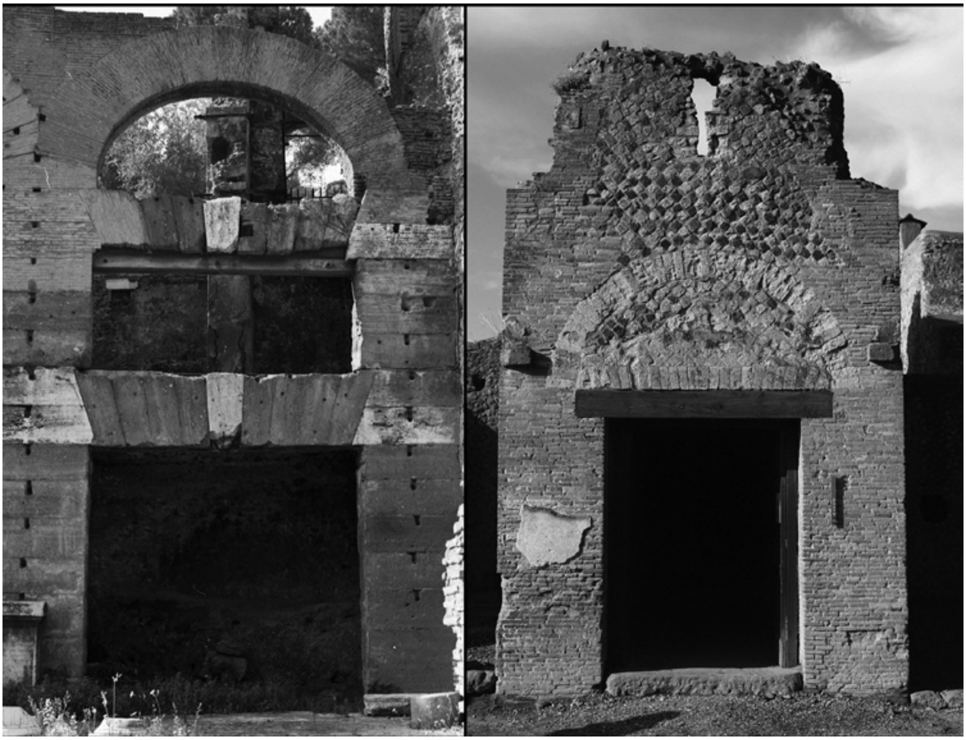


Figure 9.3 Spanning horizontal spaces. Left: the facade of a *taberna* in the Forum Iulium, Rome. The doorway is spanned by a "flat" or lintel arch of voussoirs made of tuff and (white) travertine, the latter placed at points of stress. Right: the facade of a doorway at Pompeii (Via del Foro). A wooden lintel (here reconstructed) with a relieving arch built into the wall. Stucco would have covered the visible surfaces (a trace is visible on the left side). *Source*: Ulrich.

at first at points of stress (i.e., as footings, impost, or keystone blocks), including decorative elements such as capitals (Figure 9.3). The earliest surviving marble (Pentelic) temple in Rome is the round temple by the Tiber, probably dedicated to Hercules (late second century BCE; Figure 9.2).

The softer tuffs, especially *cappellaccio*, were apparently not suitable for holding any kind of clamp, thus the Romans were much slower to adopt a device that had long been used by the Greeks. From the second century BCE, however, builders experimented with different ways to bind and stabilize stone blocks. The tuff stones used for the channel of an early aqueduct, the Aqua Marcia (144 BCE) were bound by concrete that was poured into a vertical channel cut into the inside faces of the stones (this also waterproofed the seams of the conduit; Van Deman 1934: 128). With the introduction of harder stones came the use of clamps for connecting blocks in *opus quadratum*. The earliest datable use of clamps in Rome are the iron "*pi*" clamps used

to attach the travertine facing of the Metellan rebuilding of the Temple of Castor in the Forum just after 117 BCE and the possibly wooden swallowtail clamps that connected the blocks of Anio tuff (Nielsen and Poulsen 1992: 88–89, 99). Other examples occur sporadically during the Late Republic, such as in the round Temple of Hercules in the Forum Boarium (late second century BCE) where iron *pi* clamps were used to attach the Pentelic marble facing of the cella to the travertine backer blocks (Figure 9.2; Rakob and Heilmeyer 1973: 12, Inserts 9 and 10). Wooden dovetail clamps continued to be used to connect blocks of tuff until the Augustan period; preserved examples were found in the Forum of Augustus (Ganzert 1985: 205–208, Figure 1, pl. 79.6). The wooden swallowtail clamps were typically used in foundations or walls rather than in entablature blocks where stability is a consideration. The use of iron ties and *pi* clamps to stabilize superstructures was an imperial development (Lancaster 2005a: 113–139).

As builders were adding harder stones to their material supply network, they were also developing a new material, *opus caementicium*, which consisted of small stones and/or tile fragments held together with mortar (see Section 6). By the second century BCE, builders in central Italy had begun experimenting with substituting cut stone construction with *opus caementicium*. To obtain a smooth surface and to facilitate construction, they created facings, the earliest of which was *opus incertum* (Vitr. *De Arch.* 2.8.1), which consisted of small stones laid in a random pattern (Figure 9.4). By the end of the second century (Lacus Iuturnae, Rome, 116 BCE), the facing had become more regularized so that it eventually consisted of square pyramid-shaped stones set in a diagonal grid pattern, known as *opus reticulatum* (Figure 9.4). One reason suggested for the change is that it was intended to create a division of labor between the increasing numbers of unskilled slave labor, who could shape the stones, and the skilled stone layers who built the walls (Coarelli 1977; Torelli 1995b: 229–232).

Soon after the introduction of *opus caementicium*, the technique was expanded to include vaults. Traditionally, the earliest datable concrete vault in Rome has been attributed to the standing remains located between the river and Monte Testaccio, which have been associated with the Porticus Aemilia dated by Livy to 192 BCE with a reconstruction in 174 BCE. However, this structure has recently been identified instead as the Navalia (ship sheds), which does not have an absolute date attached, though sometime in the mid-second century BCE or later is likely (Cozza and Tucci 2006). During the second half of the second century, the first of a series of large sanctuaries in Latium, the Sanctuary of Fortuna Primigenia at Palestrina, was built employing *opus incertum* walls and concrete vaults to create a massive hillside terrace (Figure 9.4). Others soon followed in the first half of the first century BCE with the Temple of Hercules Victor at Tivoli, the Temple of Hercules Curinus

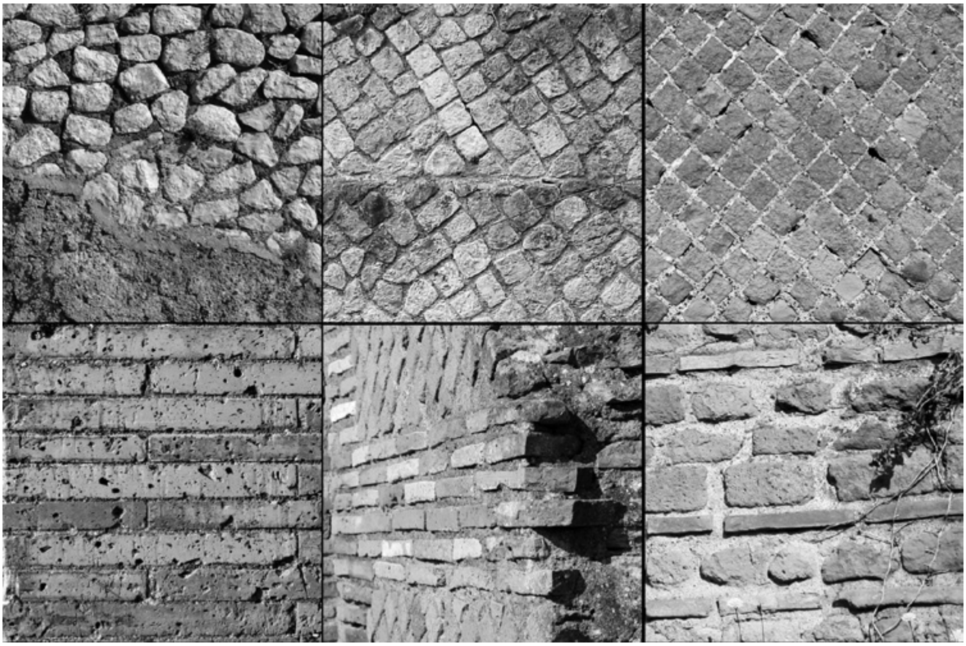


Figure 9.4 Common forms of wall facing for *opus caementicium*. Top, from left: *opus incertum* from the Sanctuary of Fortuna Primigenia at Palestrina; *opus quasi reticulatum* from the Sanctuary of Hercules Curinus at Sulmona; *opus reticulatum* from Ostia. Bottom, from left: *opus latericium* from Ostia; *opus mixtum* from Ostia (shown at an oblique angle); *opus vittatum mixtum* from the Circus of Maxentius, Rome. *Source*: Ulrich.

at Sulmona, and the Temple of Jupiter Anxur at Terracina (MacDonald 1982a: 2–8; Lancaster 2005a: 3–5, 9–10).

In these early days of the development of concrete vaulting, the spans attained were fairly modest (less than 10 m), but the wooden tie-beam truss offered an alternative method of spanning large spaces (Figure 9.5). It was likely fully understood by the second century BCE, when a new building type, the basilica, began to proliferate: no less than four were built in Rome alone (see also Section 14).

By the first century BCE, colored marbles were arriving in Rome. Suetonius (*Tib.* 49) notes that the first importation of Numidian marble (*giallo antico*) was in 78 BCE by Marcus Lepidus. Colored marble from Greece and North Africa soon became a status symbol, and monolithic columns were often used to adorn temporary wooden theaters, which were put up by wealthy elected magistrates eager to attract political support. Along with the marble came the marble workers with the skill to carve it. Under Augustus, the Italian white marble quarries in Luna (near modern Carrara) were opened (Pliny *HN*

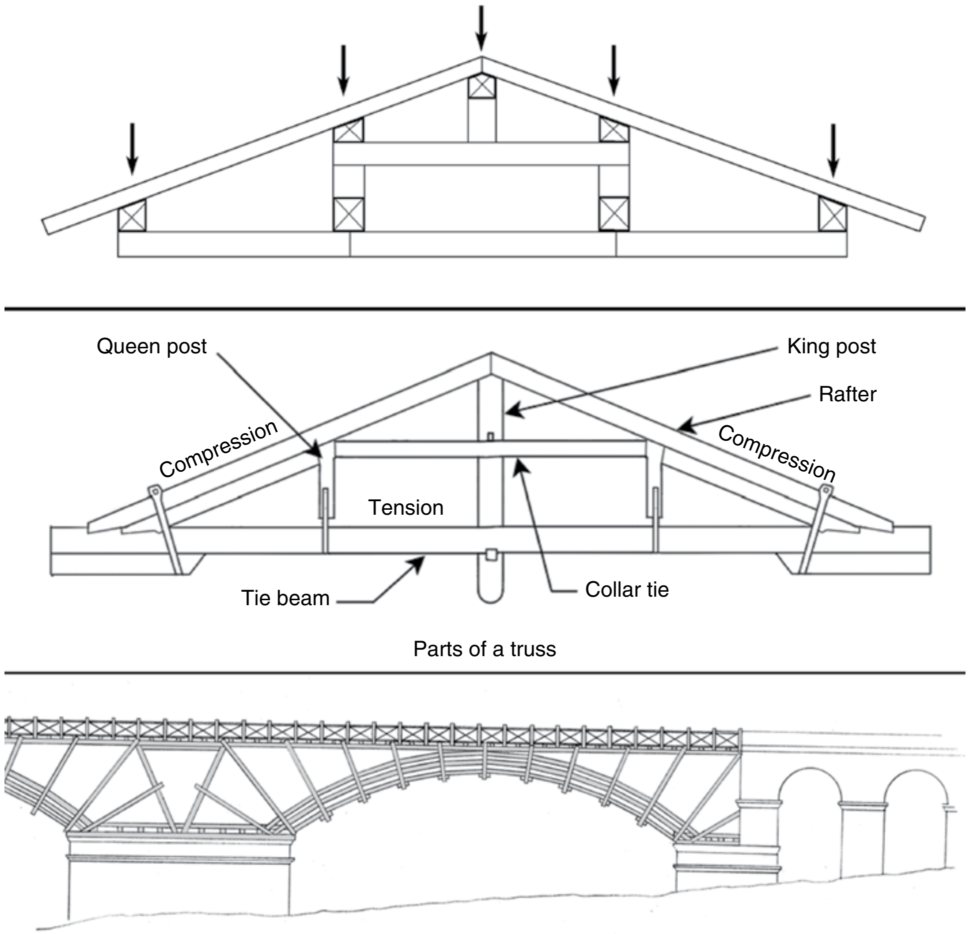


Figure 9.5 Spanning spaces with wood. Top: the prop-and-lintel system does not use a tie beam; the rafters are supported directly by a series of props. Middle: the tie-beam truss is built with the rafters connected to the ends of the tie beams. Bottom: a segmental arch created by wooden beams used in a series to span the Danube River. *Source*: Lancaster and Ulrich; Danube bridge after Galliazzo 1994: 323.

36.14), and provincial quarries began to be integrated into the new imperial administrative system (Fant 2008).

At around the same time, in the second half of the first century BCE, builders began experimenting with replacing *opus reticulatum* walls with *opus testaceum* (or *opus latericium*) brick facing (Figure 9.4). Initially they used roof tiles with the flanges knocked off (Blake and Van Deman 1947: 161). By the mid-first century CE, purpose-made flat bricks were made for facings, arches, paving slabs, and for the raised floors of the hypocausts of baths (see Section 12). *Opus reticulatum* continued to be used, albeit as panels in combination

with bands of brick, as *opus mixtum* (Figure 9.4 and Figure 17.2), but once the brick industry grew during the first century, especially after the fire of 64 CE, solid brick facings of *opus testaceum* (or *opus latericium*) became the norm (see Chapter 10). Another facing technique that was used only in the imperial period in Rome, and then mainly in Late Antiquity, is *opus vittatum mixtum* (or *opus listatum*), which consisted of alternating bands of bricks and small rectangular blocks of stone, usually tuff (Figure 9.4). This began to be common in the fourth century under Maxentius, but it was also used much earlier under Augustus in parts of Italy and Gaul (Lugli 1957: 633–655).

As Rome's territories expanded so did the desire for opulent building materials, as already seen in the case of marble. Bronze, gold, and semiprecious gems (or glass simulations) were used in both decorative and structural capacities. Pliny (*HN* 34.13) notes that Gnaeus Octavius put up porticoes of columns with bronze capitals after his victory over Perseus of Macedon in 169 BCE and that a resolution was passed to roof the Temple of Vesta in bronze. After the defeat of Carthage in 146 BCE, Lucius Mummius gilded the ceilings in the Temple of Capitoline Jupiter. Catulus went further after the temple was damaged by a fire in 83 BCE, gilding even the bronze roof tiles of the shrine (Pliny *HN* 33.57). Pliny (*HN* 34.13) notes that Agrippa's Pantheon had bronze capitals, and recent investigations have shown that Augustus's Temple of Apollo on the Palatine had painted and gilt marble capitals (Zink and Piening 2009). Bronze roof tiles were later used for both the Basilica Ulpia (Pausanias 5.12.6) and the Pantheon, which also had bronze roof trusses in its portico. These trusses were removed by Pope Urban VIII in 1625 and replaced with the current wooden structure, but drawings remain along with some of the original bronze bolts, one of which is 53 cm long and weighs 15.5 kilos! (Rice 2008: 348 n. 42). Later there is reference to the enigmatic *cella solearis* (*SHA Vit. Ant. Car.* 9.4–5) of bronze or copper at the Baths of Caracalla, which likely referred to some type of magnificent hanging ceiling (DeLaine 1987).

3. Materials by Type: Timber

The geographer Strabo admired the Romans for the richness of their natural resources and the great rivers of Italy that aided in transporting stone and timber from the mountainous interior to the coastal cities (5.3.7). Forests once covered most of the Italian peninsula; species of trees were varied, with a full range of hardwoods and softwoods suitable for building. Different types often grew in close proximity to one another, their variety due to relative location in terms of elevation, exposure, and soil composition (Meiggs 1982; Ulrich 2007: 263). Coastal and fluvial lowlands would have been cleared first to open land

for agriculture. Throughout the historical period, logging of uncultivated trees for structural timbers was focused on the mountains of Italy and the provinces. From the great mountain ranges of Italy and central Europe, timber was, throughout the Roman period, abundant and exploited. There are several indications that in densely populated areas like central Italy the demand for timber exceeded local sources, and over time slower-growing species and those that were sought after for their superior dimensions and strength were in short supply. Dendrochronology has revealed that some spruce and fir used at Pompeii and Herculaneum were logged in the Alps and transported south, presumably beginning their journey down the Adige (Athesis) River (Kuniholm 2002: 235). The largest spaces spanned with timber roofs (up to 100 Roman feet, ca. 30 m) were attempted during the first century CE, presumably when old-growth timbers were still readily available.

Wood also played an important role in masonry construction, to build forms for foundations (shuttering) and frameworks (centering) for vault construction. These practices are discussed below (see Sections 11 and 15).

The technologies of harvesting trees and preparing them for practical use are among the oldest of human endeavors. The range of wooden artifacts and the knowledge of the properties of different species were already well established by the close of the Neolithic period (ca. 3000 BCE). The transition from bronze to iron tools from ca. 1000 BCE greatly increased the ability to cut and hew large trees. Axes, adzes, and saws were used to process trunks into beams and boards; Roman depictions of sawyers and other woodworkers practicing their craft are preserved on wall paintings and relief sculpture (Adam 1994a: 87–99; Ulrich 2007: 13–58). Timbers were joined to one another with a full range of joinery techniques. For architectural applications this meant primarily mortises and tenons, half and full dovetail joints, and scarfs. Hardwood pegs and metal nails, first of bronze and later of iron, were used as fasteners. Other kinds of pins and straps were also employed to bind timbers together, as is clear from Julius Caesar's description of the timbered bridge built by his engineers over the Rhine (Caes. *BGall.* 4.17) and in Vitruvius's advice for composite beams for architraves (*De Arch.* 4.7.4).

Structural timbers have survived at a few Roman sites, such as at Herculaneum, where wood and other organic artifacts were carbonized during the heat of Vesuvius's eruption (79 CE), or in waterlogged contexts of northern Europe and Britain. The stone and concrete walls of many buildings from sites throughout the Roman world also preserve the cavities used to seat the ends of timbers; the imprints of planks used for centering and shuttering in concrete construction are also common. Together this evidence has offered clues concerning the dimensional preferences, often highly variable, exhibited by Roman builders for different kinds of applications, especially flooring, joists, and framing (see Section 12 and Ulrich 1996; 2007).

Ancient references in literary texts and inscriptions to the usefulness of specific species for certain applications are invaluable for reconstructing the process. Vitruvius and Pliny, for example, both praise the fir tree for its use in flooring, its fine strength-to-weight ratio (thus making it especially suitable for the spars of ships), and its long, straight lengths (Vitr. *De Arch.* 2.9.6; Pliny *HN* 16.195). Alder was known for its resistance to rot and therefore was valued for foundations and wooden water pipes (Pliny *HN.* 16.218; Vitr. *De Arch.* 2.9.10). Certain species of wood, most notably the European larch (*larix*), were considered more fire-resistant than others and were transported great distances for use in important buildings (Vitr. *De Arch.* 2.9.14).

4. Materials by Type: Brick and Tile

In Rome, bricks were produced in three standard square sizes: *bessalis* (⅔ Roman foot), *sesquipedalis* (1 ½ feet), and *bipedalis* (2 feet) (Lugli 1957: 546, 97; Blake 1959: 162; Adam 1994a: 147). The larger bricks were often cut into triangular pieces for use as wall facing on a core of *opus caementicium*. Walls of solid brick were rare (see Section 17). Occasionally, a course of *bipedales* ran through the wall, usually at significant points in the construction, such as where scaffolding was attached, joists were hung, or arches sprang (DeLaine 1997: 143–145). The standardization of brick sizes often resulted in corresponding wall thicknesses of 2 feet, 2 ½ feet, 3 feet, and so on. The bricks in Rome sometimes bore stamps, which often had the name of the owner (senatorial class) of the brickyard or clay beds and the person (usually slave or freedman) responsible for the workshop making the brick (see Chapter 10).

Roman bricks are much thinner than modern ones, usually varying between 2.5 and 4.9 cm thick depending on the type of brick and the date. The ratio of brick to mortar changed over time. The finest brick facing, with relatively thin (ca. 1-cm), raked mortar joints, is found in the late first and second centuries CE in Rome whereas later walls tend to have thick mortar joints often as wide as the bricks themselves (Figure 9.4). The thinner and wider form of the bricks was probably chosen to facilitate the drying process so that cracking was less likely to occur. Vitruvius (*De Arch.* 2.3.2) refers to the problem when he recommends that bricks be made in spring and fall so as not to dry too quickly in the summer heat. He is discussing sun-dried brick, but the same advice applies to kiln-baked brick because they had to be thoroughly dried before firing. To combat the problem of shrinkage and cracking, the clay was often mixed with a tempering agent, which for fired brick in Rome was usually some type of mineral agent such as sand or *pozzolana*. The clay was formed into a brick inside a wooden frame, then carried to a drying floor where the frame was removed and the bricks left to dry for perhaps three to four weeks

(Bianchi 2004: 274–275). Examples of bricks still left out to dry have been excavated at Llafranc, Spain (DeLaine 1997: 114–118). The dried bricks would then be fired in a kiln at a temperature around 800° C (Adam 1994a: 63), though variations from 600° to 950° have been documented (Bianchi 2004: 280–281; Winter 2009: 524–525). In general, roof tiles were fired at the high end to ensure impermeability.

The stamps on bricks from Rome have been found in structures in North Africa (Wilson 2001), Sardinia (Wilson 1980–1981: 228), and southern France (Rico 1995), revealing that they were sometimes even exported overseas. More commonly, however, bricks were produced locally in other parts of the Empire (Dodge 1987). In Greece and Asia Minor the bricks were either square or rectangular, and any modular dimensions tended to be applied only at a local level. Bricks and tiles made by the military have been found in northern and eastern provinces where legions were stationed and were often stamped with the name of the legion or auxiliary unit responsible (McWhirr 1979).

5. Materials by Type: Stone and Marble

One of the clever aspects of Roman architecture is the way in which the builders understood and exploited the material properties of the stones they had at hand (see the Glossary). As previously mentioned, the volcanic tuffs, which were most often employed in early buildings in Rome, were strong in compression and thus good for walls, columns, and voussoirs, but they were weak in tension and could not be used for long lintels subject to high bending stresses (see Section 2). Tuff had the advantage of being easy to carve but the disadvantages of not holding a clean edge and being susceptible to weathering unless it was plastered. The introduction of travertine and marble to Rome in the second century BCE gave builders access to denser white stones that could be used for architraves with longer spans. Resistance to fire was also a consideration in choosing a stone. Travertine has a high coefficient of expansion and therefore is easily damaged by fire when it expands and breaks apart (Vitr. *De Arch.* 2.7.2). *Peperino* (*lapis Albanus* and *lapis Gabinus*), on the other hand, was the stone recommended by Tacitus (*Ann.* 15.43) for its fireproof properties.

With Augustus and the beginnings of an imperial system, the use of marble, particularly the colored varieties, became a sign of imperial power over conquered territories. Suetonius (*Tib.* 49) notes that in 17 CE Tiberius expropriated the mines and quarries under Roman control. Indeed, the quarry marks, found particularly on colored marble, demonstrate state control of many of the most prized stones. The quarry inscriptions recorded the date of extraction, the

work crews, and the location within the quarry (Dodge 1991; Fant 2008). The organization developed during the first century and was fully in place by the early second century when the *ratio marmorum* (marble bureau) is first attested.

Quarrying techniques in both the Greek and Roman periods were similar for tuffs, limestone, and marbles. A channel or trench was carved around the block and then the block was split from the bedrock along its lower surface by means of wood or iron wedges driven into pre-carved holes along the line of detachment. Sometimes the wedge holes were connected by chiseled lines (*pointillé* technique) to facilitate the splitting. One Roman contribution to the process was the use of a heavier pick that made the trenching go more quickly at the cost of greater material loss (Fant 2008: 129). The channels and wedge holes are still visible at many ancient quarries, including the tuff quarries near *Grotta Oscura* (Lugli 1957: 256) and the Roman marble quarries at Docimium in Turkey, among others.

Heavy stones were often transported with sledges controlled by thick ropes attached to bollards stationed along downhill ramps built within quarries, as seen at the Mons Porphyrites quarry in the eastern desert of Egypt. Other evidence from the nearby Roman quarries at Mons Claudianus shows that the stones were also transported in large, wheeled carts towed by draft animals (Maxfield and Peacock 1997: 1: 260–264). Many quarries, however, were located close to the sea, such as those at Luna, Proconnesus, or Carystos, and did not require such extravagant means of land transport, thus reducing their cost. However, a hallmark of Roman construction was the use of monolithic columns, and the lifting and transportation of the largest ones was a particularly labor intensive task regardless of the quarry location.

6. Materials by Type: Mortar and Concrete

Opus caementicium, or Roman concrete, consisted of three basic ingredients: slaked lime, inert sand or a pozzolanic additive, and pieces of aggregate (*caementa*) 10–20 cm long. Compared to modern concrete, *opus caementicium* resembles a type of mortared rubble because the aggregate is hand laid in the mortar rather than mixed and poured into place. Early examples of mortared rubble used mortar of mud or a lime and sand mixture (Blake and Van Deman 1947: 312). The key to the advanced development was the discovery that volcanic ash (*pozzolana*), when substituted for inert sand and mixed with lime and water, produced a much stronger mortar that could harden under water. *Opus caementicium* had the great advantage that the aggregate could be varied so that the builders could control the density and weight of the concrete, which in turn allowed them to control the forces within the structure (see Section 16).

The first ingredient, lime, is derived from burning stones containing calcium carbonate ($CaCO_3$), usually limestone, travertine, or marble. Limestone was probably the major lime producing stone for Rome during the Republic and High Empire. The nearest sources of limestone to Rome would have been the foothills east of the city (DeLaine 1995: 560, Figure 1; 1997: 88–89). The stones were burned at around 900–1,000 ° C (Davey 1961: 100; Adam 1994a: 65) in order to release the carbon dioxide and turn the stones into calcium oxide (CaO), or quick lime, which was then combined with water (H_2O) to create calcium hydroxide ($Ca(OH)_2$), or slaked lime. Given that lime is a processed material, it was probably more expensive than the *pozzolana*, a fact implied by Pliny (*HN* 36.176) and later stated by Faventinus (Lancaster 2005a: 17).

The second ingredient could be either inert sand or a chemically reactive substance such as *pozzolana*. The chemically reactive elements that make pozzolanic mortar hydraulic and stronger than a mortar of lime and sand are soluble silica (silicon dioxide, SiO_2) and alumina (aluminum oxide, Al_2O_3), which when combined with slaked lime create calcium silica hydrate (C-S-H) and calcium alumina hydrate (C-A-H) (Massazza 2002: 328). Vitruvius (*De Arch.* 2.4.1, 2.6.1) mentions two types of volcanic ash that made good quality mortar. One is *pulvis puteolanus* ("powder" from Puteoli, modern Pozzuoli), which refers to the volcanic ash from the Bay of Naples and gives "*pozzolana*" its modern name. The second is *harena fossicia* (pit sand), which refers to the volcanic ash produced by the volcanoes around Rome (Jackson *et al.* 2007). Other materials, such as crushed terracotta and certain types of organic ashes, could also produce similar reactions when mixed with lime. *Opus signinum*, or *cocciopesto*, which is a hydraulic mortar made with crushed terracotta, was initially used mainly for waterproofing and for pavements rather than for structural uses; however, as mortar-based construction moved to the provinces, it became more common in structural mortar during the second century CE. By the sixth century, the Hagia Sophia in Constantinople used the characteristic pink mortar throughout the structure (Mainstone 1988: 70).

The third element of *opus caementicium* consists of the *caementa*, or aggregates, that are bound together by the mortar. The choice of *caementa* allows the builders to make foundations denser and more resistant by using hard stones such as leucititic lava (*selce*) or travertine, the walls less dense with the use of broken brick or tuff, and the vaults lightest of all by using volcanic scoria or pumice. The local stones and salvaged rubble, including marble, from demolished buildings provided a wide array of choices, but the lightest stones for the vaults were often imported from Vesuvius and Campi Flegrei on the Bay of Naples (Lancaster *et al.* 2011). These were used most often in imperially sponsored structures, where imported stones could be afforded.

7. Materials by Type: Stucco

Plastering and relief work in stucco of walls and ceilings was the dominant surface treatment, employing teams of highly skilled *tectorii*. The practice was widespread in the Greek world by the fifth century BCE and used by Romans to coat walls, columns, and capitals by the third century (Blanc 1983; Adam 1994a: 216). The cured mixture of lime and sand is surprisingly durable. A battered relief from Sens (*Agedincum*) shows plasterers at work and both Vitruvius (*De Arch.* 7.3) and Pliny (*HN* 35–36) describe the process.

At Pompeii, walls were commonly covered with three layers of plaster (fewer than recommended by Vitruvius (*De Arch.* 7.3.6–8) and Pliny (*HN* 36.55); for Rome see Nielsen and Poulsen (1992: 189)). A preliminary thick (3–5-cm) layer of lime mixed with rough sand was covered with a second, carefully smoothed layer using sifted sand (Varone and Béarat 1997: 204). The thin topcoat of pure lime (sometimes mixed with powdered limestone, gypsum, or marble dust) produced a surface that could be polished and, if desired, painted. Relief work in stucco on walls and ceilings was popular at least from the late second century BCE onwards and included architectural elements like cornices and engaged columns or figural subjects sculpted directly on the surface (Adam 1994a: 226).

8. Materials by Type: Metal

Metal was important for a variety of architectural uses. As discussed above (Section 2), iron and bronze, the latter an alloy of copper and tin, were used as clamps and dowels to connect blocks and to attach stone revetment. Bronze and iron nails and spikes (*clavi*) were used to attach terracotta revetments to wooden entablatures and wooden flooring to joists. Roof tiles and doors for high status buildings could be fashioned from bronze. Lead, bronze, and iron were also critical for door hardware and locks, for grates covering window openings, and as mullions to hold glass panes in place. In bath buildings, bronze water furnaces heated the water for the hot pools, as shown from excavated finds at Boscoreale and at a Bath in Algeria (Yegül 1992: 373–375), and lead pipes channeled the water to fountains, baths, and households throughout urban environments. As with the quarries of the most desirable marble, Roman mines were controlled by the imperial administration, either directly through the military or imperial procurators or through leases to private entrepreneurs who were overseen by imperial staff (Hirt 2010). The stamps placed on ingots provide information on the structure of these operations, and finds on shipwrecks indicate that there was a wide trade in these metal ingots.

9. Materials by Type: Glass

Glass as a building material was critical for the development of bath buildings in particular because it allowed light while retaining the heat generated by the hypocaust system. Though glass was known long before the foundation of Rome, the use of window glass only appeared in the early first century CE (Sen. *Ep.* 90.25). It was first made by pouring molten glass into a flat mold and then grinding one side flat. Later in the third century a new technique was devised using a blown cylinder that was opened out flat and sliced into rectangles (Price 1976).

10. Selecting the Right Material

In the following sections we consider how particular materials were used to construct the component parts of buildings of different types and settings. Material use in a given application was determined by factors such as local building traditions, desired longevity, and local availability. Technological innovations, such as the development of the wooden truss and concrete or the ability to transport and lift heavy materials, also influenced application. Environmental issues played an important role, including protecting floors and walls from moisture, living spaces from climactic extremes, food storage from pests and thieves, and all buildings from accidental fire. Material choice was often not based on the most practical or economical solution; buildings of status or of particular religious significance were commonly constructed of rare (and therefore expensive) materials that were chosen to honor a patron or tutelary deity.

First and foremost, the materials had to be strong enough to support their own weight (or permanent load), the weight of occupants and furniture, and finally the considerable temporary loads imposed by winds and even the occasional blanket of wet snow. Little survives from extant written sources to suggest that anything similar to modern materials science or engineering theory existed to aid Roman builders. Roman construction was a process of trial and error. The safest route was to "overbuild," and doubtless builders examined structures that had survived the test of time (thus, the builders of the first Christian churches in Rome could study the surviving civic basilicas of the city, some of which had stood for centuries). There were certainly spectacular failures: the collapse of a wooden amphitheater blamed on shoddy construction that killed or injured many spectators is a famous example cited by both Tacitus (*Ann.* 4.62.2) and Suetonius (*Tib.* 40). Today we can discern repairs made to buildings where the builders clearly underestimated the load capacity. The great domed pavilion in Rome of the early fourth century, the "Temple

of Minerva Medica," which was designed around an elegant decagonal base pierced by large windows, had to be reinforced with massive buttresses because the builders had overreached the limits of their materials and design.

From such successes and failures there can be little doubt that Roman builders reached a practical understanding of their craft and paid close attention to the suitability of different materials in different applications and how these materials interacted with one another. Some doubtless experimented with materials and later adopted or abandoned their innovations. Vitruvius (*De Arch.* 7.1.1), for example, cautioned about bonding wooden floor joists with masonry walls; the warping of the former might crack the latter. An unknown builder in Pompeii tried to protect a fine plastered surface from the moisture and salts of a concrete masonry core using sheets of lead, an experiment that was not duplicated, perhaps due simply to the high cost of the treatment (Adam 1994a: 219).

11. Foundations, Footings, and Substructures

Structures are tied to the ground by foundations (*fundamenta*), which are usually built below grade or are semi-interred (thus, also, "*substructio*"). Walls may be built directly upon bedrock; more often some kind of foundation is required. Wooden posts and piles are the earliest forms of foundation work. The evidence for these is most commonly seen in the form of "post-holes," found in both hard substrates like tuff (Palatine Hill, eighth century BCE) and soft soils (e.g., fortress and warehouse construction at sites in Roman Britain). Rammed wooden piles, the tips of which were often charred or sheathed in metal, is attested both through literary evidence (Caes. *BGall.* 4.17; Vitr. *De Arch.* 1.5.3) and archaeological finds (Marchetti 1891: 51). Such piles might be used individually to create stand-alone trestles for bridging (*Pons Sublicius*, Rome) or tightly grouped to form a "pile cluster" to support masonry piers (Figure 9.6; Cüppers 1969: 51), such as was found under the concrete foundations of the Theater of Marcellus in Rome (Ciancio Rossetto 1995: 99). Buildings in flood zones, such as those along the Po River Valley, were suspended above the ground on wooden piling (Strab. 5.1.7; Vitr. *De Arch.* 2.9.11), a practice that dated back to prehistoric times in northern Italy. Wood foundations in the form of "sleeper beams" were also common, particularly in the provinces north of the Alps, including Britain (Frere 1972: 6; Birley 1977: 110); horizontal beams were laid in trenches, mortised to receive vertical studs, and later buried (Figure 9.6).

Burying amphoras was another means of creating stable surfaces in marshy areas (Figure 9.6). The practice dates back at least to the fourth century BCE when it was used in the Greek colony of Marseilles (Laubenheimer 1998: 47).

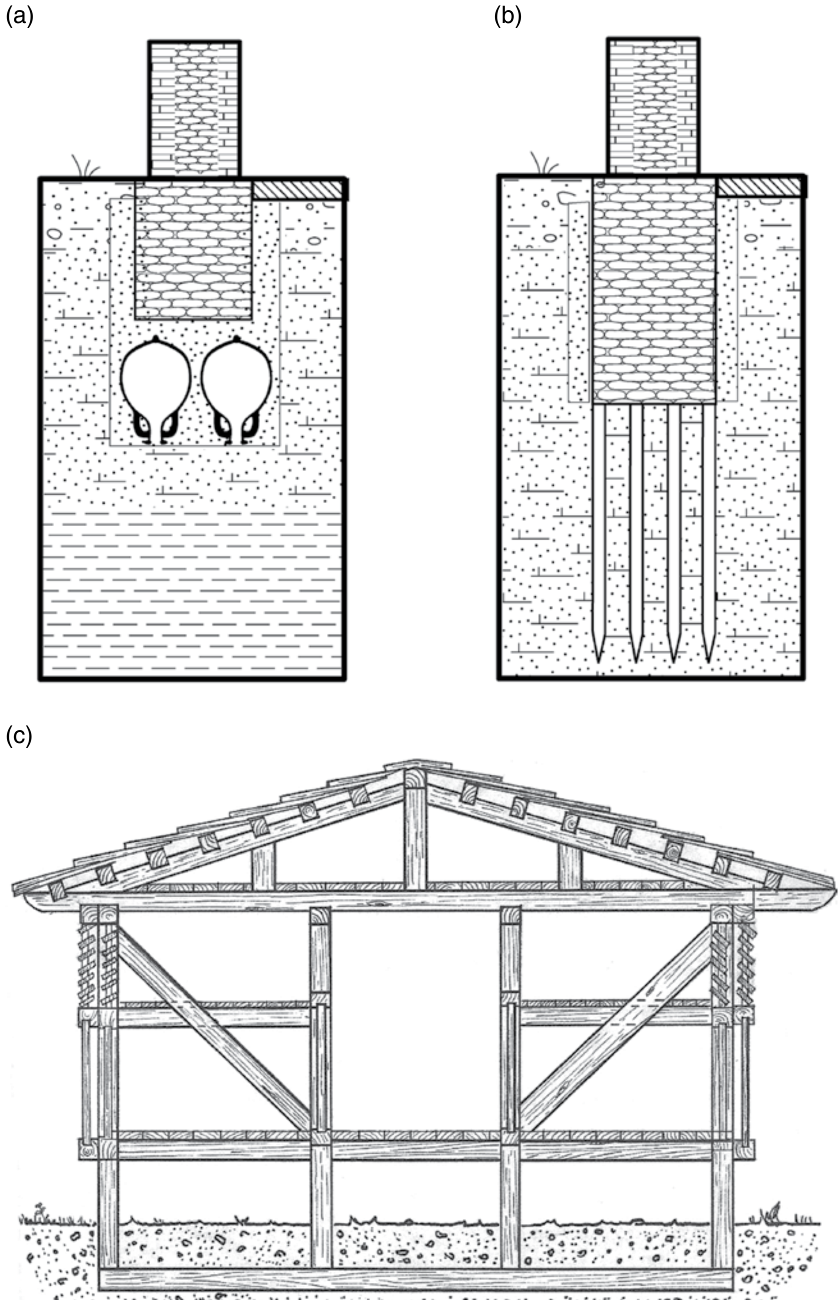


Figure 9.6 Foundation methods. (a) Foundations stabilized with amphoras; (b) Foundations stabilized with wooden piles; (c) Foundations made of sleeper beams. *Source*: (a, b) Lancaster; (c) Ulrich after Rickman 1971: 237, fig. 47.

In Italy, they were used to create stable foundations for buildings and roads and also to facilitate soil drainage, and to reduce moisture problems on the ground floor of buildings. Numerous examples have been found in the Po Valley (Pesavento Mattioli 1998).

Foundations of more durable materials – unworked stone, fitted stone blocks, and later concrete, either faced with brick or stone or cast in wooden "shuttering" – were used for both private and public buildings. For temples, the perimeter of the podium was built as a wall of heavy stone masonry that created a massive container for the curing *opus caementicium*. Barrel-vaulted chambers built into the podium both saved material and also provided secure storage areas for public or sacred treasuries, such as the Temple of Saturn in Rome (Plut. *Ti. Gracch.* 10; App. *BCiv.* 1.131). Shuttering, on the other hand, involved the construction of two parallel plank walls framed with vertical beams; these enclosed a mass of concrete until it cured; then the valuable wood was removed for reuse. Foundations for harbor breakwaters – those of the Roman Port of Caesarea Maritima in Judea are an outstanding example – were similarly built by filling empty wooden boxes with concrete and allowing these to sink and harden on the sea floor (Raban 1989).

With the appearance of enormous structures like amphitheaters, special measures sometimes had to be taken. Investigations in the 1970s and 1990s revealed new evidence of the construction methods used for the Flavian amphitheater in Rome, better known as the Colosseum (69–80 CE). The facade of the amphitheater and the supporting walls of the seating area rest on an oval ring of *opus caementicium* just over 60 m wide and about 12 m in depth. The foundation, which had to span an area consisting of differing geological makeups and prevent differential settling, was built in two layers. (Beste 2003: 377). This second layer housed the drainage channels for the superstructure, which acted as a giant catchment basin.

12. Floors: *Contignatio* and *Suspensurae*

The floors of single-storied structures ranged from simple beaten earth "pavements" to floors of *opus signinum* (mortar with crushed tile), mosaic *tesserae* laid in mortar, and elaborate cut marbles arranged in geometric patterns (*opus sectile*). Multi-storied structures employed upper floors supported by concrete vaults, or, most commonly, a deck of horizontal wooden joists and planking that carried a thick layer of mortar and tile (*contignatio*; Figure 9.1; Ulrich 1996). Exposed wooden floors were avoided in living spaces due to the ever-present danger of fire. Wooden beams could pass through and project from exterior walls to support upper balconies (*maeniania*) and exterior rooms, acting as cantilevers.

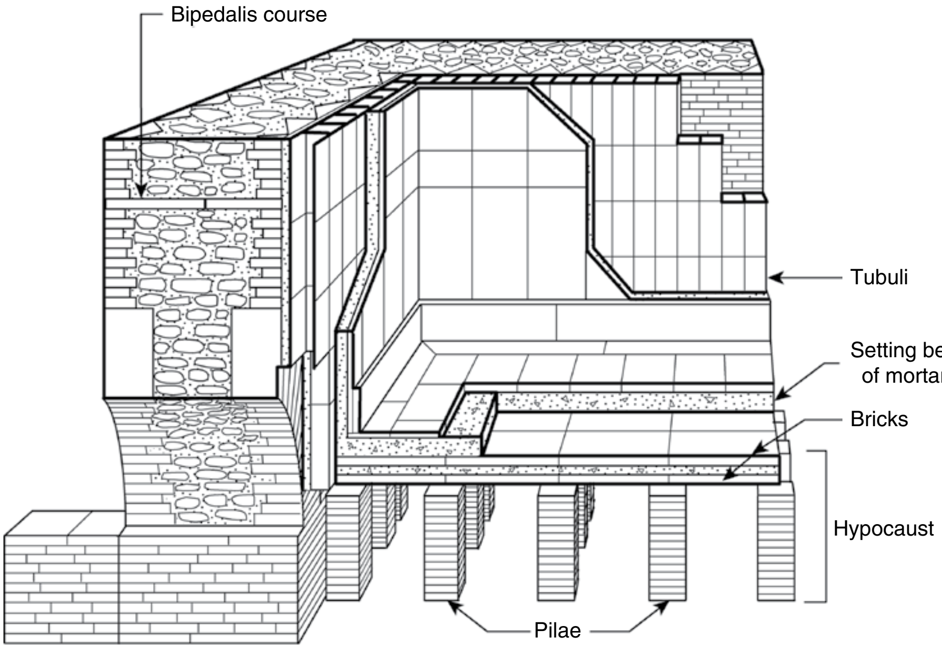


Figure 9.7 Analytical drawing of bath and wall construction. *Source*: Lancaster after Yegül 1992: fig. 442.

Granaries were constructed with suspended floors to provide ventilation (Figure 9.6; Pliny *HN* 18.73). Those of the northern provinces were built mostly of wood, including boarded floors supported on a grid of wooden posts (Rickman 1971: 214; Manning 1975: 105). The heated rooms in Roman bath buildings were equipped with a raised floor connected to a series of furnaces that supplied the hot air running underneath (hypocaust). Piers (*pilae*) made of small bricks, cylindrical terracotta supports, or stone supported a masonry floor built up from one or two layers of square, two-foot bricks (*bipedales*) covered by a thick (ca. 15-cm) layer of mortar, usually *opus signinum*, sheathed with marble or mosaic (Figure 9.7). The earliest hypocaust in Italy occurs in the Stabian Baths at Pompeii by the end of the second century BCE. Such heated floors were also found in the reception rooms of imperial palaces (Palatine Hill, Trier, Germany) and even some private residences (Ostia).

13. Walls – Special Techniques

The major wall construction techniques have been discussed above, but the builders sometimes used special techniques that helped solve particular problems, both structural and constructional. The use of courses of *bipedales* in

walls has been discussed above (Section 5; Figure 9.7). Recently, examples of painted lines and notations have been found on brick-faced concrete walls in Rome. The painted lines often occur at the same locations that the *bipedales* were used, such as the spring of arches. At the Baths of Trajan, inscriptions that date the completion of a particular section of brickwork wall have been found painted on the walls (Volpe 2002). There, they were used to record the stages of the construction of a relieving arch, which was a common technique used to stabilize a wall that ran over a void below, such as a drain or a lower room (Figure 9.3). The inscriptions indicate that the arch was completed first and then the infill below was added later, which suggests that the arch was intended to divert the load of the wall away from whatever was below it as the concrete hardened and gained strength (Lancaster 2007).

After the development of heated floors in bath buildings, the technology was applied to walls and occasionally vaults. Early examples occur in the restorations (perhaps first century BCE) of the Stabian Baths and the Forum Baths in Pompeii, where air spaces were created by attaching specially made bricks, *tegulae mammatae*, which had bosses at the corners to act as spacers, so that the hot gasses from the hypocaust could heat the walls. Later, the builders began to use hollow rectangular terracotta tubes, *tubuli*, to collect the hot gasses (Figure 9.7). A third method, common in both western and eastern provinces, was to use terracotta studs or spacer tubes that held the bricks in place. Baths were a symbol of Roman culture and were found throughout the Roman Empire, and the materials and techniques used to construct them varied according to environmental factors and the resources at hand (see Chapter 16).

14. Spanning Spaces: Trabeated Architecture

Roman builders typically spanned spaces with either flat ceilings or curvilinear vaults, though some narrow spaces, like underground water conduits, could be covered by leaning two slabs of stone against one another. The oldest method was the use of a lintel, which in its primeval form was no more than a thick branch or trunk of a sapling supported by a pair of forked uprights (*furcae*; Figure 1.1). The individual unit or “bay,” two uprights supporting a horizontal member (post-and-lintel), could be repeated in sequence to form any number of structures of seemingly limitless size or configuration, such as a long portico, a covered basilica, or a wooden amphitheater. Multi-storied structures were built by stacking the uprights so that the lower carried the weight of those above. Height was limited by the strength of the posts at the lowest level.

Posts and the lintels they carried were originally wooden. Stone posts followed and in section were rectangular or square (piers or pilasters, depending on size) or circular (columns). Brick was also used for both cylindrical columns and

pilasters. Depending on size and material, stone posts were monolithic or assembled from individual blocks or drums. Wooden or stone, column or pilaster, virtually all posts were crowned by some form of "capital," and all the Roman orders (Tuscan, Ionic, Corinthian, and Composite) included a base. The capital evolved into a highly decorative element, but its essential structural role was to increase the size of the bedding for the ends of the lintel (or "architrave").

The size of the unencumbered ("free") span of the Roman post-and-lintel (or "trabeated") structure depended on several factors. The most important of these were the type of material used, the dimensions of the material, and the stresses (compression and tension) created by the structural context. Wooden beams are capable of longer free spans than stone blocks, due to a high strength-to-weight ratio and the tensile strengths of wood fibers and grain. Wooden architraves and ceiling joists could thus be paired with stone columns to create broad and airy porches for temples or the great trussed spans (discussed below) that covered reception halls, *odea*, and civic basilicas.

Before the advent of vaulting, massive stone lintels were necessary for spanning openings where wood could not be used, such as those used over the doorways of tombs and those used for city gates, the latter of prime importance during the Early Republic when defensive circuits were still a necessity. When access to good building stone, particularly Luna marble, increased over the course of the first century BCE, Roman patrons and architects designed colonnaded spaces with heavy entablatures such as those employed for temples, porticoes, and basilicas entirely of stone with a corresponding reduction in intercolumnar spans (see Chapter 11). The practice provided the patron opportunity to display costly colored marble (or granite) as material wealth grew along with the Empire. At sites in the eastern provinces, where a strong tradition of stonework was never abandoned, builders were able to lift enormous stones into place. A block from the corner of the cornice of the Temple of Jupiter at Baalbek weighed about 75 tons (Ragette 1980: 106–107).

Horizontal wooden beams were used frequently to span the width of rectangular spaces for upper floors, ceilings, and roofs. Beam ends were seated in sockets in masonry walls; in some cases the span was lessened and the bedding strengthened by seating the beam ends on corbelled shelves or stone brackets that projected from the wall face (see discussion of floors, Section 12).

The greatest challenge lay in spanning broad open spaces. A series of cantilevers was one option. Timbered bridges built with horizontal spans supported by a stack of cantilevers have been proposed as a means of crossing the Thames River in Roman London (Milne 1985: 51). Before the triangular truss was invented, maximum spans using wooden beams were not much greater than 11 m (Klein 1998: 338; Meiggs 1982: 196–198). Greek and Etruscan roofing was built primarily with a "prop-and-lintel" system that supported architraves, purlins, and rafters by rows of vertical props supported by interior columns or walls

(Figure 9.5). By the second century BCE, spaces such as the central naves of basilicas were covered by taking advantage of the triangular truss (perhaps "*testudo*"), created by attaching the ends of ceiling joists (tie beams, or "*transtra*") to the those of the principle rafters (*capreoli*), the latter being kept in tension by the lateral thrust of the former (Figure 9.5). Scholars have proposed that the truss may have been developed by western Greeks in Sicily as early as the archaic period (mid-sixth century BCE), but whether this invention was thereby transferred to central Italy or was discovered there independently is not known (Hodge 1960: 41; Klein 1998: 335–374). The only ancient description of the construction of the truss is found in Vitruvius, where the architect describes the basilica he designed at Fanum (also the source of the terms used in this paragraph, Vitr. *De Arch.* 5.1.6–10). The primary rafters of a triangular truss were spaced to support longitudinal purlins; these sustained a secondary set of rafters that carried the outer sheathing of tiles. By the early first century BCE, immense spans were being attempted with apparent success: the covered theater (*odeum*) at Pompeii (ca. 80 BCE) was covered with a truss that spanned 87 feet (25 m) (Ulrich 2007: 138–148). With one exception (Basilica of Maxentius, ca. 300 CE), Rome's great basilicas and palatial halls (those in the Domus Flavia approaching a span of 100 Roman feet, 29.6 m), were roofed using the timber-truss (Gibson, DeLaine, and Claridge 1994: 67–97; Ulrich 2007: 150–157).

15. Spanning Spaces: Arches and Vaulting

The Romans were using arches by the sixth century BCE as shown by one covering a domestic cistern excavated on the Palatine Hill (Cifani 2008: 320–322). The advantage of the arch is that all the stones remain in compression. The basic principle is that the radiating joints allow the wedge-shaped voussoirs to push against each other and direct the load toward the sides of the opening underneath. This was important because early builders in Rome were relying on the local volcanic tuff, which has even less tensile strength than travertine, limestone, or marble and likely contributed to the early use of the arch in the sixth century BCE (Cifani 2008: 322–323).

Once the arch was used in superstructures, its semicircular form was not always suited to the architectural context so the builders developed the flat, lintel arch (Figure 9.3). They used the radiating joints to create a flat arch that effectively acted as a beam that was totally in compression (as long as there was sufficient resistance to the outward thrust at either end). The earliest examples in Rome occur over openings in walls where the masonry on either side provides good resistance to the outward thrust of the voussoirs (e.g., the Tabularium, 78 BCE, 5.18-m span). The lintel arch also allowed for traditional post-and-lintel forms at a larger scale and with softer stones. One technique was to have

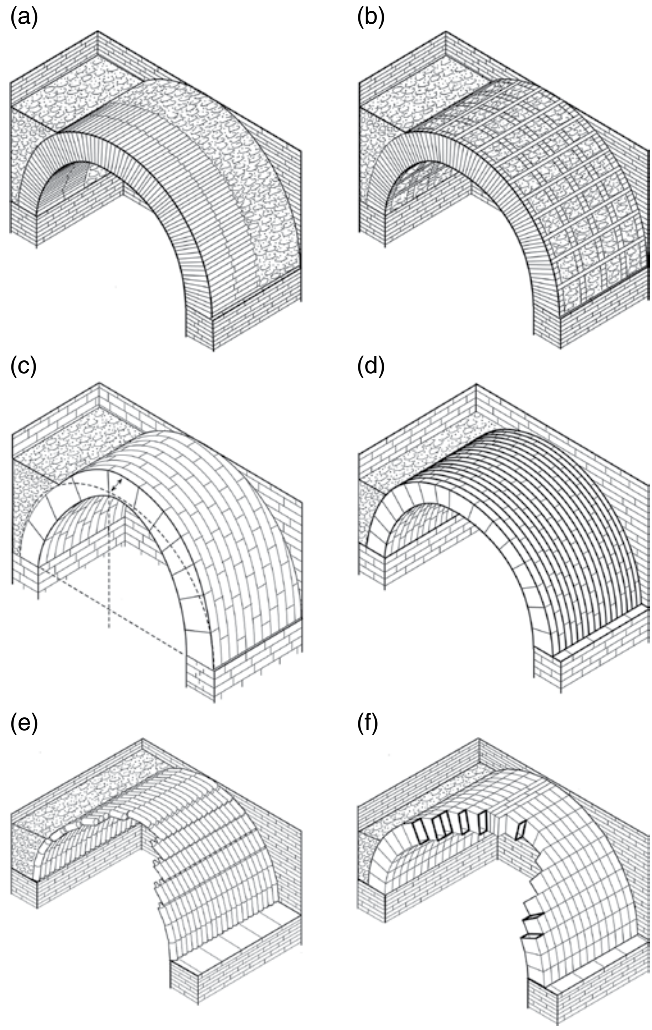


Figure 9.8 Brick vaults. (a) Vault with solid brick rib; (b) Vault with brick lattice ribbing; (c) Vault of pitched mudbrick; (d) Vault of vertically set fired brick; (e) Vault made with permanent centering of terracotta vaulting tubes; (f) Vault made with hollow terracotta voussoirs. *Source*: Lancaster.

a monolithic lintel spanning two columns and then to build the frieze above it as a lintel arch with a slight gap between the bottom of the voussoirs and the top of the lintel so that all the weight of the superstructure was directed to the columns and not onto the lintel itself (DeLaine 1990: 410–417).

An important development in the use of the arch was its combination with *opus caementicium* to create a concrete barrel vault (Figure 9.8). In early examples the *caementa* were placed radially like voussoirs with abundant mortar in between so that the stones did not have to be carefully shaped as in a

true stone arch. By the late first century BCE, builders in Rome began to set the *caementa* in horizontal layers within the vault. This phenomenon has led to the suggestion that Roman pozzolanic mortar was strong enough to resist tensile stresses and thus acted as a monolith that placed no outward thrust on the support structure (Blake 1959: 163; Ward-Perkins 1981: 101; Adam 1994a: 177). Indeed, it could resist some low-level tensile stresses, but as soon as cracks developed (as they usually did), the vault exerted outward thrust on its supports. The Roman builders clearly did not expect the concrete vaults to act as monoliths because they devised numerous means to counter the lateral thrusts.

The simplest methods for countering the thrust of a vault were to thicken the wall, to add buttresses, or to combine a series of vaults so that they countered each other. A method of actually reducing the thrust was to make the upper part of a vault lighter. The most famous example is the Pantheon dome, where the upper third was built with alternating rows of *Grotta Oscura* tuff and Vesuvian scoria. In the lower part of the dome where the curve bends down to approach the vertical, the builders used heavier *caementa* in order to redirect the lateral thrust downwards through the wall. In addition to making the materials at the bottom of the dome heavier, they also added a "surcharge" or extra weight, in the form of the distinctive step-rings that surround the lower part of the extrados. These rings, combined with the heavier *caementa*, served to push the thrust downwards to the walls by adding even more weight (MacDonald 1982a: 110, Lancaster 2005a: 141–142; see also Chapter 4).

Vaulting ribs could also be used to control the forces and to direct loads to particular points within a structure. The brick arches visible in the rotunda wall of the Pantheon are the ends of brick arches that extend through the 6-m thickness of the wall. They were intended to channel the weight of the dome to particular points on the foundation so that it was evenly distributed. Sometimes the builders would reinforce a section of a vault with a brick or stone arch if it supported another wall running above it, as can be seen at both the Colosseum and the Grand Aula at Trajan's Markets. Later, in such situations, they would simply reinforce an entire vault with a latticework of bricks, as in the substructures of the Baths of Maxentius on the Palatine (Lancaster 2005a: 86–112; Figure 9.8).

Finally, an often-forgotten aspect of both stone and concrete arched and vaulted construction is the wooden centering required to form and to support the vault during construction. Ancient sources do not discuss the practice and no visible traces remain, other than the imprints of planking in concrete vaults or projecting impost blocks that once supported the wooden forms. For the largest vaults, such as the Pantheon dome or the cross vaults of the great imperial *thermae*, these would have been complex and impressive structures themselves. Not

only did they have to be strong enough to support the weight of tons of wet concrete, but they also had to be designed so that they could be disassembled from below. These structures no doubt relied on principles of trussed construction; thus the greatest vaulted structures were to a certain degree dependent on the availability of timbers and the technology of woodworking necessary to assemble them (Lancaster 2005a: 22–50; Ulrich 2007: 172–177).

16. Integration of Diverse Materials and Structural Components

Most projects during the historical period involved diverse materials for the components of a structure and the orchestration of different skill-sets during the process of construction: a wooden roof paired with masonry walls is a common example. In this sense much of Roman architecture is of hybrid nature. The choice and degree to which materials were combined were generally for practical and structural considerations, although aesthetics and tradition also often dictated material choice for certain public buildings.

Opus craticium, a method of building walls with a framework of timber infilled with mortared rubble, is a prime example of mixing materials of different properties (Figure 9.1). The thickness of such walls is determined by the dimensions of the timber framing; thus they are generally much thinner than walls of solid *opus caementicium* and were generally used as partition walls or additions to existing buildings. Despite their apparent flimsiness, numerous examples at Pompeii and Herculaneum survived the earthquake of 62 CE and the eruption of Vesuvius in 79 to be excavated virtually intact (Ulrich 2007: 97–100), but there is no evidence that builders consciously chose this form of construction as one resistant to seismic activity.

Trajan's bridge over the Danube River also serves as an excellent example of a major building project that fully exploited the skills of the stoneworker and the carpenter to achieve an unprecedented result (Figure 9.5). Although the bridge was dismantled soon after it was built, its site has been identified in Romania (at Turnu Severin). An ancient description of Cassius Dio survives (Dio 68.13), and, most important, a depiction of the structure exists on Trajan's Column in Rome. Dio's figures give an overall picture of the project: 20 stone piers, spaced at intervals of 170 Roman feet (ca. 50 m), supported segmented arched wooden spans. Measuring from the center of each pier, the clear spans would have been about 110 Roman feet (32.50 m), slightly wider than the free spans of the largest known wooden ceilings in Roman Italy. Trajan's engineer, Apollodorus of Damascus, translated the curvilinear masonry arch to a segmental beamed arch, eliminating the need for immense (and perhaps unobtainable) single horizontal timbers to span the open water.

A shallow arch, as that depicted on the Column, spanning 110 feet of open water, would have required a minimum of four straight timbers around 30 feet long (ca. 9 m). The bridge depicted on the Column is undoubtedly simplified in terms of the number of timbered segments shown; in reality more segments would have been easier to achieve with shorter, lighter, and more easily procurable lengths (Galliazzo 1994: 2:323).

As revolutionary as Apollodorus's use of masonry and wooden arches appears to have been for the spanning of the Danube, there is no evidence that this feat was replicated for applications on land. Nevertheless, the use of lighter wooden beams in innovative ways to span spaces ranges from the common "false" vault of domestic settings to large-scale attempts to cover or partially cover the seating areas of amphitheaters. The former, usually constructed as small barrel vaults, were constructed of lathe and plaster and actually suspended from a hidden beam ceiling. Numerous examples have been excavated in the ruins of Pompeii and Herculaneum and even at the Domus Aurea in Rome. The covering of amphitheaters involved practices that combined the skills of the naval architect with those of the builder. The exact configuration is not known, although it involved a combination of wooden spars, linen cloth, and hemp rigging (see also Chapter 15).

Small arenas may have been entirely covered with wooden roofs, however temporary. A stone amphitheater depicted on a relief from Rome, perhaps dating to the first century BCE, shows the characteristic elliptical walls in stone, with an upper level built of vertical timbers (Coarelli 2001). The entire structure is apparently covered by a multi-gabled roof of timber-trusses reinforced by vertical kingposts and diagonal braces. Clearly the structure was considered novel enough to be immortalized in a stone carving.

17. Building Techniques Characteristic of the Roman Provinces: Greece and Asia Minor

Direct and sustained contact with the architectural traditions of Greece and the Hellenized eastern Mediterranean, including the Greek mainland itself, began in the latter half of the third century BCE, with the conquest of Sicily and the acquisitions of Greek lands over the second century. The exposure to the artistic traditions of the Greek world had a profound impact on the Roman conquerors (see Chapters 2 and 3); in a few famous cases architectural elements were even transported back to Rome and proved highly influential (see Chapter 11). Greek architects brought their skills to Rome, the first marble construction in Rome used stones from Greece, and in the imperial period exotic marbles were imported from quarries on mainland Greece (e.g., *cipollino*, serpentine) and Asia Minor (e.g., *pavonazzetto*; refer to the Glossary for additional examples).

Roman-period construction in the Greek world, including the provinces comprising mainland Greece, Asia Minor, and the lands of the Levant, was undertaken in an environment with an established tradition of fine building materials (primarily high quality limestone and marble), superior craftsmanship, and a taste for architectural ornament (Boëthius and Ward-Perkins 1970: 369). Public buildings, fortifications, and retaining walls were characteristically built with tightly fitting ashlar blocks, including the largest ever quarried in the Greco-Roman world (the "trilithon" stones of Baalbek weighing some 800 tons each; cf. Ragette 1980; Adam 1994a: 41). Limestones, regardless of grade, were commonly covered with a finish coat of marble stucco.

The inherent linearity of quarried blocks challenged Roman-period builders who attempted to reproduce the curvilinear forms of the Roman West, where the use of concrete prevailed. While the form of the cylindrical tholos was well established (if not an invention) of Greek tradition, recreating the signature Roman concrete hemispherical dome in stone stretched the skills of the ablest masons, and fine examples can still be seen in eastern cities like Baalbek (Temple of Venus, early third century) and Gerasa (the Roman baths, second century). This same tradition resulted in a number of centrally planned buildings with faceted exteriors. Examples include the Tower of the Winds in Athens (ca. 50 BCE) and Diocletian's Mausoleum in Split (ca. 300 CE). Similarly, the projecting apses of late-period basilicas in the eastern Mediterranean were commonly constructed with faceted exteriors. The normally horizontal and monolithic block of the marble entablature was produced in voussoirs to create an "arcuated lintel" that sprang directly from column capitals (e.g., the Temple of Hadrian, Ephesus, ca. 130 CE).

In areas with a rich tradition of cut stone, distinctive techniques developed. In Asia Minor one finds plays of rough and smooth textures in stone finishing (much like those of Michelangelo). In Lycia, in particular, the use of polygonal masonry continued long after it was abandoned elsewhere (Farrington 1995: 80–86). So, at Patara there is a mid-first-century CE circular lighthouse built of two concentric faces of polygonal masonry, with an internal staircase remarkably similar to Trajan's Column. Numerous baths and theaters in Lycia were also built in this same technique.

Roman-period concrete construction was by no means unknown to the Greek world. At sites like Corinth, refounded as a Roman colony about a century after its defeat by Mummius in 146 BCE, concrete is used conservatively as fill for temple podia or substructures, but in other areas of the former Greek world, its use, while never dominant, is nevertheless innovative. At Caesarea Maritima (Judaea) *pozzolana* imported from the Bay of Naples in Italy was used to fill wooden caissons that were sunk in place to create an outer harbor breakwater (Oleson and Branton 1992). Brick-faced concrete was widespread in Greece by the second century CE , whereas in

Asia Minor walls were sometimes built of solid brick, such as the Temple of Serapis at Pergamon (second century), or of mortared stones with occasional horizontal bands of solid bricks as in the baths at Sardis or the Basilica at Aphrodisias. In the West, similar type brick bands can also be seen, as at the North Baths at Cimiez (Cemenelum) and the Basilica at Trier (Augusta Treverorum, ca. 300 CE).

Brick was also used for vaults in ways that were not found in Rome (Dodge 1990). Throughout Greece and Asia Minor vaults were often built with an intrados of radially laid bricks (one or two bricks thick) and then mortared rubble was added above to create the vault. These brick linings have often been robbed leaving only the concrete fill with tell-tale setback at the impost where the brick used to rest. A somewhat different type of brick vault was imported from the East. Beginning under Hadrian one finds a version of the pitched brick used in mudbrick construction in the Near East and Egypt as a means of eliminating the need for centering (see below under Egypt; Figure 9.6). In the Roman version, the bricks are set vertically, and for barrel vaults they were sometimes made in trapezoidal forms to fit the curve of the vault, as can be seen in various sections of the aqueducts at Athens and Eleusis. This method of building was probably brought from Parthia after Trajan's Parthian War and is an example of the Roman adaptation of the ideas of others for their own purposes (Lancaster 2010). Variations on this technique were later employed for building cross vaults and sail vaults without centering. A rare example of a pitched brick dome occurs at the Mausoleum of Diocletian at Split, mentioned above.

18. Building Techniques Characteristic of the Roman Provinces: Egypt

In Egypt, a long history of building in mudbrick was continued under Roman rule. At Karanis in the Fayum, the houses consisted largely of mudbrick, though stone was sometimes used for foundations, underground rooms, and the lower parts of facade walls along a street. The majority of the walls were made of unfired bricks of mud and sand or chopped straw laid in concave (as opposed to horizontal) courses called pan bedding, which had appeared first in New Kingdom architecture (Nicholson and Shaw 2000: 91–92). This technique was intended to prevent cracks, especially in unstable soil conditions, and to hold the corner blocks in place (Petrie 1938: 10–12; Husselman 1979: 33, pl. 12–13; Gazda 2004: 23). Moreover, the walls were also sometimes reinforced with rough trunks of palm (Nicholson and Shaw 2000: Figure 3.13c). Upper floors and roofs were made of split palm logs spanned by mats of palm sticks and palm fiber rope, which was then overlaid by mudbricks to form the surface

(Husselman 1979: 37). Roofs of underground rooms and grain storage facilities, on the other hand, were built of pitched mudbrick in the traditional manner whereby the bricks were set on edge side by side to form an arch (instead of being set radially as was typical in Rome; Figure 9.8). Each subsequent ring of bricks was glued to the first using a mud slurry. The arches were slanted to prevent the bricks sliding off, which in turn eliminated the necessity for wooden centering. The vaulted rooms were either covered by barrel vaults, which often took a tall parabolic form instead of the more typical segment of a circle, or by vaults springing from all four walls, such as sail vaults, which spring from spherical pendentives, or squinch vaults, which spring from conical forms across the four corners.

19. Building Techniques Characteristic of the Roman Provinces: North Africa

Roman North Africa produced various building techniques that were adopted in other provinces. *Opus africanum* (modern nomenclature; also known as "*opera a telaio*") is a method of building stone walls in which a framework of vertically set stone piers is filled with mortared rubble, which can be faced with randomly patterned unshaped stones, small rectangular blocks, or (rarely) *opus reticulatum*. The vertical blocks of the piers are sometimes separated by horizontal stretchers and are thus similar in concept to *opus craticium*. It takes its name from its common occurrence in Roman North Africa from the second through the sixth centuries CE, but earlier versions of it appear in Punic contexts (North Africa, Sicily, Sardegna). It also appears in early walls (third–second century BCE) at Pompeii (e.g., House of the Surgeon). Controversy reigns regarding its origin, partly due to the way in which the technique is defined (i.e., with or without stretchers, monolithic vertical piers or ashlar piers of stacked stones). Some have argued that it is a Phoenician technique that came westward with Punic colonization (Fantar 1984; Mezzolani 1994) while others maintain a Hellenistic Greek origin developed from ashlar masonry techniques (Sharon 1987). Whatever its origins, its applications in imperial architecture seem to be limited to the western Mediterranean in areas of previous Punic influence (with the exception of Pompeii). The reasons for its use are unclear; it may have served to divide the wall into manageable building units or perhaps to reinforce the wall against earthquakes (Hanoune 2009).

Another technique associated with North Africa is the use of terracotta vaulting tubes for building vaults without the use of wooden centering (Figure 9.8). The tubes are usually ca. 6 cm in diameter and have a nozzle at one end that is inserted into the open end of the next tube. They are "glued"

together with quick drying gypsum mortar to create a permanent centering on which concrete could be laid. This type of vaulting tube appears in North Africa during the second half of the second century CE. Prototypes of the idea can be seen in the large (60-cm-long) bullet-shaped tubes used in a third-century-BCE bath building at Morgantina (Allen 1974: 376–379; Lucore 2009) and in a second-century-BCE bath at Cabrera del Mar in southern Spain (Martín 2000: 160). The idea was carried forward in the pottery industry where kiln roofs were built with interlocking terracotta pots from the second century BCE. The distinctive nozzle tube that appeared in second-century-CE North Africa could be mass produced using a potter's wheel and could be used for both large and small vaults of various forms (Lancaster 2012a). After its initial appearance in North Africa, it spread mainly within the western Mediterranean basin, with a few examples in military contexts in Britain. By the fourth century, what had started as a permanent centering for concrete developed into a thin, lightweight vault on its own. This type can be found in early Christian buildings in Italy, the most famous example being the sixth-century dome (17-m span) of San Vitale in Ravenna (Wilson 1992; Storz 1994).

In Mauretania Tingitana (modern Morocco), an usual method of building heated walls in bath building developed whereby slotted bricks projected from the wall facing and vertical slabs slid into the slots to create an air space connected to the hypocaust (Camporeale 2008). It is also found across the Strait of Gibraltar in southern Spain, thus emphasizing the strong connections between these two regions.

20. Building Techniques Characteristic of the Roman Provinces: Europe and Britain

In Europe and Britain some of the more innovative construction techniques occurred in the contexts of military construction and bath buildings. When on campaign, the Roman army had to make do with the local materials, especially for ramparts of temporary (and sometimes permanent) camps. One of the most common materials for fortifications in Britain was turf reinforced with timber (*murus caespiticius*), a method described by Vegetius (*Ep. Rei Mil.* 3.8). Examples have been excavated at Bearsden in Scotland and at Rottweil, Germany (Arae Flaviae) (Johnson 1983: 59–60). Modern reconstructions show that standard-sized turf blocks each weighed 32–34 kg.

During his campaigns in Gaul, Caesar (*BGall.* 7.23) describes a type of wall, *murus Gallicus*, that consisted of wooden beams fastened together longitudinally and reinforced transversely to create a timber network, which was filled with earth and then faced on the either side with cut stone such

that the ends of the transverse beams were visible on the exterior stone facing (Johnson 1983: 69; Ralston 1995: 64–66). Similar walls are shown on Trajan's Column as part of the Dacian defenses (Richmond 1935: 39), and remnants of one can be seen at the Dacian stronghold of Costeşti (MacKendrick 1975: 55–56, Figure 3.6). Though not common in Roman fortifications, this technique was adopted by the Roman builders for the new garrison (ca. 135 CE) built at Saalburg.

Innovations in the western provinces can also be seen in bath buildings. In Britain a technique was invented in the last quarter of the first century CE for heating the vaults by using hollow terracotta voussoirs that were connected to the box tiles along the wall (Figure 9.8). This technique spread throughout Britain but rarely left the island (one example at Xanten, Germany) (Lancaster 2012b). The idea was later used for a structural purpose to create the lightweight vaults (unheated) at the Baths of Sulis Minerva at Bath, which has the largest vault in Britain (13.6 m) (Cunliffe and Davenport 1985: 49–53).

A different technique for creating lightweight barrel vaults was used extensively in Roman Gaul. Ribs were formed of brick voussoirs with tenons extending horizontally from the bottom so that a flat terracotta slab spanned between each pair of ribs. Sometimes a mortise was also included at the top corners of each rib so that a top slab could be added to create a hollow space between the ribs (Bouet 1999: 85–111). The technique was used in both heated and unheated rooms, the best preserved example being the North Baths at Cimiez (Nice) (Benoit 1977: 61–62). It also spread to Britain (Woodfield and Johnson 1989) and to Mauretania Tingitana and southern Spain and Portugal (Camporeale 2008).

21. Summary: Roman Contributions

Roman builders were able to adopt and adapt local materials and building traditions to realize architectural forms that came to symbolize what it meant to be "Roman." With the mastery of concrete, planners and builders constructed monumental complexes with much of the work completed by unskilled or only semi-skilled workers. The increased use of curvilinear walls, apses, and soaring vaults was a result of this fluid medium. Yet there are also strong currents of conservatism in the history of Roman building, and the traditions of stone carving and skilled carpentry ensured the longevity of trabeated construction. The concrete cross vault and dome along with the wooden tie-beam truss enabled patrons and their builders to realize the greatest covered spaces that had ever been built. Arches, both semicircular and flat, in brick and stone made possible enormous doors and windows, thus permitting unprecedented amounts of light and air into the great bath buildings and audience halls.

The relative peace and stability of the provinces through most of the imperial period along with a sophisticated road and maritime trade network enabled builders to employ exotic stones and timber from all corners of the Roman world. Mass production of materials, such as brick and tile, as well as the legal infrastructure for managing labor meant that ambitious projects could be supplied with sufficient materials and workers. The desire to demonstrate a connection with the imperial power base led to unprecedented levels of euergetism in the provinces, whereby the local elite could demonstrate their largess to the community by building elaborate structures that would bear their names for the ages. Moreover, the increased populations of the urban centers put additional demands upon builders and the materials they used, both in terms of the grand scale of public structures (especially the baths) and the attendant issues of public safety that such building projects entailed. In Rome, we know from Tacitus (*Ann.* 15.43) that the fire of 64 CE had a great effect on the attitude towards creating more fireproof permanent structures. All these factors led to a gradual replacement of impermanent materials that characterized Rome's beginnings with more permanent ones of brick and stone, which have left their legacy scattered throughout the Mediterranean.

GUIDE TO FURTHER READING

There are a number of important sources for the topics covered in this chapter. A general study of the materials and techniques used by Roman architects and builders is the lavishly illustrated monograph by Adam, in both its original French (1989) and later English (1994a) editions. A similar approach, with comparative examples from both Greek and Roman contexts, can be found in Malacrino (2010). Lugli's two-volume set on Roman construction is still the single most important source in Italian (1957); however, see the helpful and more available textbook by Giuliani (2006a). The process of construction has been examined in terms of planning, execution, and materials by Anderson (1997), DeLaine (1995; 1997), and Taylor (2003). For building materials and their use over time in specific contexts in Italy, the older studies of Blake (1959; 1973) and Blake and Van Deman (1947) are still useful. A comprehensive volume on Greek and Roman engineering, which contains many articles on Roman building, has recently been edited by Oleson (2008). Over the last decade, monographs on specific materials and techniques, such as vaulted construction in concrete by Lancaster (2005a) or the use of wood in Roman architecture (Ulrich 2007), offer more focused studies. Aspects of marble usage and the marble trade have been examined closely since the middle of the last century by scholars like Ward-Perkins (1971; 1980), Dodge (1991; with Ward-Perkins 1992), and Hirt (2010). The ancient treatise on architecture by Vitruvius contains many references to materials and methods of construction. Rowland's translation of 1999, accompanied by illustrations by Howe, has been a welcome addition to Vitruvian studies.

CHAPTER TEN

Labor Force and Execution

Rabun Taylor

Introduction

What little we know about the organization of the workforce in Roman building projects has accumulated in large part by inference. Writers of antiquity had little interest in recording such matters. Humble practitioners, with few exceptions, had no voice except, literally, from the grave. Their funerary inscriptions – generally terse, formulaic texts with only minimal biographical information – account for most surviving information about the Roman artisanate. Vitruvius's famous *Ten Books on Architecture*, for which posterity is forever grateful, offers little help in this matter, for it gives scant attention to the workforce even when describing building processes. Still, taken in the aggregate, our information is enough to have inspired at least two scholars to write social histories of Roman architecture (Gros 1978; Anderson 1997). To these we can add a vast store of knowledge gained from close examination of buildings themselves. Even in ruins, buildings remain rich documents of the means by which they were created and of the people who created them.

1. Off-Site Labor

Any discussion of labor in Roman construction projects must account for the extraction and production industries providing materials and goods to them. Only two of these industries have yielded any substantial information about their

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organizational structures: the brickworks and tileworks in central Italy of the imperial period, whose production and distribution were under the control of the senatorial and equestrian elite (and increasingly, over time, the emperor); and the quarrying of high-prestige marbles, porphyries, and granites, which was tightly controlled by the emperor through an Empire-wide network. Military legions and auxiliaries produced and stamped their own bricks, and these too are valuable documents of the Roman building industry, especially in the provinces.

1.1. Bricks and roof tiles

Brick and tile were generally local commodities. The widespread availability of resources to produce them rarely justified long-distance transport (MacMullen 1959: 212), but there are exceptions to this rule, especially in Sardinia and Africa (Wilson 1980–1981: 228; Steinby 1981: 237–245; Thébert 2000; Wilson 2001). Most of what we know about the organization of their production is derived from the stamps and marks applied to them. Stamps are usually products of the management, but one graffito incised into a roof tile at Aquileia offers the merest glimpse of a lowly (but literate!) worker's point of view:

> Woe betide you if you don't scrape 600 bricks. If you scrape fewer, get ready for trouble. (*CIL* 5.8110, 968)

If this number represents a daily rate, it could only have been achieved on a production line in which one worker pressed clay into the mold, another scraped off excess clay, a third removed the molded clay, and so on (Brodribb 1987: 126). Many brickworks in Britain used "tally-marks," Roman numerals incised on the edge, evidently to keep track of batches produced (Brodribb 1987: 131–135).

The organization of brickworks in central Italy has received much attention (Bloch 1947; Helen 1975; Steinby 1981; 1993). Here the practice of stamping bricks with names began in the first century CE and became the standard for major producers under Trajan, at which time the consular date of production was also included. It endured until the Severan period, after which brick stamping ceased, only to reemerge under the Tetrarchy and Constantine. The standard production facility for these building materials was called a *figlina* ("clayworks") or simply *officina* ("workshop"). It was operated by an *officinator*, usually a slave or freedman (a number of women too are attested) answerable to the *dominus* – the owner – who might have controlled large numbers of *figlinae* (Steinby 1993).

The *domini* were members of the political class at Rome; many of their names are known from other contexts. Over the second century their numbers diminished, apparently as part of a general imperial strategy of centralization

and consolidation of power, but a few senatorial families like the Marciani and the Domitii remained dominant brick barons throughout the second century and on into Late Antiquity. Brick stamps have often been taken as marks of quality, but E.M. Steinby challenges this notion. A typical inscription, which might read *ex officina* [of a named *officinator*], *figlinae* [of a named *dominus*], effectively expresses a standard contract between the two in which the *officinator* is the contractor and the *dominus* lets the contract. Thus Steinby (1993) interprets the stamps as indicators of the number of units produced by the contractor to verify that he was fulfilling his contract. Steinby's conclusions pertain only to central Italy; elsewhere, like Roman Britain, public and military *officinae* would have stamped bricks to deter theft (Brodribb 1987: 117–118).

Military brickworks habitually used brick stamps (Kurzmann 2005; 2006). They typically indicate the name of the army unit and often append the name of an *officinator*. While civilian artisans served the military in many other ways, these stamps seem to indicate that the army rigidly controlled the *figlinae* of Roman forts and so, by inference, the clay quarries supplying them. Some give the name of the legionary prefect or even the legate (governor) of the province. The brickyards supplied not only the military's needs, but also those of nearby cities, where army brick stamps can occasionally be found in civic buildings.

1.2. Prestige marbles

From the Late Republic through the mid-second century, the great patrons of Roman architecture, and the emperor in particular, added new and exotic stones to the building repertoire. The quarries of high-value building stone fell under the emperor's control, where they mostly remained until the dissolution of long-distance stone transport networks in Late Antiquity. Certain of these stones – especially colored ones – served imperial priorities, while others, sometimes from the same quarries, were put straight on the open market (Fant 1993).

Our understanding of the workings of the quarries depends almost entirely on inscriptions either at the sites or on blocks of stone transported from them. The best documentation comes from the quarries of Docimium in Phrygia, which produced the famous purple-veined white marble (*pavonazzetto*) favored for monumental architecture (Hirschfeld 1905; Röder 1971; Fant 1989). First exploited by Romans in the Late Republic, these quarries were most productive between the reigns of Domitian and Septimius Severus. Quarry marks on the stone indicate that between the 90s and the 130s private contractors undertook most of the labor while imperial slaves or freedmen served as the inspectors. After this time, the *procurator* or general overseer of

quarrying, typically an imperial freedman, took greater control of the operation, and contracts seem to have ceased. The main quarry comprised four *bracchia*, or branches, each with multiple *loci* (extraction sites). The extraction teams were known as *caesurae;* at any given time, most or all of them were overseen by a single chief, sometimes an army centurion. Extracted stone was then evaluated and shaped for transport by the *officinae*, the stoneworkers' teams. Between 137 and 236, 19 such teams are recorded, each with its own name. Requisitioned stone was brought to the administrative center of Synnada (modern Şuhut, Turkey); here the *procurator* of the whole operation, typically an imperial freedman, added inventory numbers to the blocks before they were transported far overland and by river to ports on the Mediterranean or Black Sea and then shipped to their destinations. The inscriptions say nothing about the workers themselves, but the hardest and least skilled labor was certainly involved in the extraction and conveyance of blocks. Convicts and captives were often sentenced to such work, and so it may be for security as well as logistical reasons that the chiefs of the *caesurae* tended to be army officers. The *officinae*, on the other hand, employed only skilled workers. The names of these workshops – Papia, Herculiana, Lucilli, Urania, Severiana – imply collegiality and shared identity; they may have functioned, in effect, as competing brotherhoods.

The signature stones of imperially sponsored building projects were the porphyry and gray granite of Egypt. A third Egyptian stone, the famous pink granite of Assuan (Aswan) in the Nile valley, had been exploited by the pharaohs and Ptolemies and continued to be popular under Roman control. The quarries at Mons Porphyrites and Mons Claudianus probably opened under the emperors Tiberius and Claudius, respectively. The main sources of red porphyry and gray granite in antiquity, they lie in the mountains far east of the river near the Red Sea (Maxfield and Peacock 1997–2006; Maxfield and Peacock 2001–2007). The economics of transport required the larger stones, in the form of enormous column shafts, to be transported overland to the Nile where they could be floated to Alexandria and across the Mediterranean. Roads from these quarries connected to Kaine (Caeonopolis, modern Qena) on the Nile, the administrative center for transport. At the quarries the stone was probably loaded onto massive carts pulled by huge teams of camels. Mons Claudianus had a semi-permanent population of about 900 – enough for the quarrying operations, but certainly not for transport. Animals and unskilled labor, it seems, were requisitioned during the winter – the heavy land transport season – from every district of Egypt and then released from duty in time for spring planting. Conveying a single giant column shaft weighing as much as 150 tons required the logistical support of a small army of imperial functionaries, middlemen, and contractors (Peña 1989). A fragmentary papyrus plausibly dated December 29, 118 CE, provides a glimpse into their world:

> To the most honorable Apollonios, greetings. Chairemon, who is delivering this letter to you, is not unknown to you, brother. … Now I have sent him for a consignment of barley; I exhort you to make haste in all things and immediately to send to him all existing barley in the district under your jurisdiction and to give assistance, so that he may quickly load all the barley and transport it to Kaine with all haste; for we have a great many animals for bringing down the fifty-foot column, and already we are nearly out of barley. … In the third year of Hadrian Caesar, on the third day of [Tybi?]. To Apollonios, Strategos of Heptakomia. (*P. Giss.* 69)

The column was likely just one of a dozen or more mammoth, 50-foot gray-granite shafts produced for the Temple of the Deified Trajan in Rome, which Hadrian would have wished to complete early in his reign. One cost estimate places the price of maintaining the Mons Claudianus quarry and transporting 12 40-foot columns to Kaine on the Nile at about 73,000 *denarii*, or the annual earnings of well over 2,000 men (Adams 2000). This does not include salaries or the cost of transport beyond Kaine. Adams's estimate seems conservative in light of abundant archaeological evidence of a lavish lifestyle at the quarry. There was no forced labor here; workers earned twice as much as their brethren in the Nile valley, and their surprisingly varied diet included many luxury foods (van der Veen 1998). But a very different picture emerges for Mons Porphyrites, where convicts were committed to forced labor (Aristid. *Aegypt.* [36] 67; Maxfield and Peacock 2001–2007: 1:5–6).

2. On-Site Labor

In many cities in the West, including Rome and Ostia, a single association, the *collegium fabrum tignuariorum*, served as an umbrella organization for the skilled building trades (Waltzing 1895–1900: 2:117–122; Pearse 1974: 68–71, 122–139; DeLaine 2000b: 121, 132; 2003: 727–731). In Rome, the membership of this association is estimated at about 1,330, making it the largest known *collegium* in the city. It had a quasi-military structure, evidently because in other towns it often doubled as the fire brigade; in Ostia and elsewhere a high-ranking city magistrate served as the *praefectus* (Meiggs 1973: 319–321). Its unique structure may have inspired the somewhat confused passage in a late-antique source asserting that Hadrian, "after the fashion of military legions, organized into centuries the builders, surveyors, architects, and the whole class of men who construct buildings" (Ps.-Aur. Vict., *Epitome de Caesaribus* 14.5). At Ostia this association alone had about 350 members by the end of the second century, some of whom attained prosperity and social prominence (Pearse 1974: 130–131; DeLaine 2003: 727–731). More

specialized associations are also known at Rome, such as those of metalworkers, stone carvers, building surveyors, pavers, ceilers, demolition squads, and masons. The *collegium dendrophorum*, consisting of workers or merchants of timber, was well represented around the Empire, eventually becoming a religious brotherhood (Waltzing 1895–1900: 2:122–125). Much scholarship has been devoted to the *cura operum (publicorum)* in Italy, a bureaucracy whose administrative duties involved financing, approving, and provisioning public works projects (Pearse 1974: 51–55, 73–81; Kolb 1993; Daguet-Gagey 1997). Provincial metropolises may have had their own versions of the *cura* to manage construction funds provided by the emperor, the city, or private benefactors (Pliny *Ep.* 10.17), but the *cura* had little direct control over the building process. The site and its operations seem to have remained in the hands of private contractors who hired most of the workforce (Pearse 1974: 38; Anderson 1997: 95–118).

Women could be patronesses of *collegia* of the building trades, but not members (Waltzing 1895–1900: 4:255). Does this exclusion mean they were shut out of the building profession altogether? They could, and did, operate production facilities such as brickyards and lead pipe factories. But their callings as *officinatrix*, *plumbaria*, and so on may have been essentially desk jobs, requiring aptitude and accounting skills but little physical labor. By contrast, the culture of the building site was defined by machismo, as it remains today.

Beyond the terse and formulaic funerary inscriptions from which we get most of our information about the *collegia*, we have few sources to flesh out daily life within the building trade. Cicero's letters preserve a few vivid anecdotes of his dealings with architects and builders working on his and his brother Quintus's properties (Anderson 1997: 102–108; see Chapter 7). One architect, Cyrus, was apt to expand pedantically on theory; a contractor, Diphilus, was a dimwit who botched the erection of a colonnade (Cic. *Att.* 2.3.2; *QFr.* 3.1.1–2). Extraordinarily, Quintus let a contract for a building to his own slave, Nicephorus – who then, by legal right, withdrew from the contract when Quintus expanded the requirements without augmenting the price (Cic. *QFr.* 3.1.5). But to get some sense of life in the workyards and on-site, we must turn to pictures, mostly in the form of occupational reliefs on the tombs of men in the building profession. Bricklaying, stonemasonry, lifting with cranes, fresco painting, sawing wood and stone, workyards, building sites, and many other themes – even a water-powered sawmill for cutting quarrystone – are represented in paintings and reliefs around the Roman world (Adam 1994a; Delaine 2000b: 126–127; Taylor 2003; Ritti, Grewe, and Kessner 2007).

One class of skilled workers was more prominent than the others, largely on account of their mobility and the masons' marks (or even signatures) they left on their work. These were architectural stone carvers (Pearse 1974:

145–148). Rome seems to have had a large, semi-permanent population of them, mostly from Greece, Asia Minor, and other areas in the Hellenized East with strong traditions of stone sculpture. At times of urban expansion, other cities too looked abroad to meet their needs. However, supply and demand always were in flux: "it was not simply the case that work chased the craftsmen; craftsmen clearly also had to chase the work" (Pearse 1974: 147). Between the mid-second and early third centuries, the great North African city of Lepcis Magna employed carvers from Attica and Asia Minor to produce the highly embellished stonework on the city's public buildings. The former group had a native affinity for the imported white Pentelic marble and the latter for the gray-streaked Proconnesian. Nicomedia in Bithynia, probably the administrative center for the elaborate distribution network of the popular marble of Proconnesus, may have produced many of these craftsmen and others attested elsewhere (Ward-Perkins 1992b). Regional centers of diffusion are also known; their common denominator is that they controlled quarries that exported high-quality building stone. In Spain, for example, the town of Almadén de la Plata, blessed with a variety of local marbles, hosted a *pagus marmorarius*, which can be interpreted as a base community of mobile stone carvers; Estremoz in Lusitania may have had a similar arrangement (Cisneros Cunchillos 1988: 127–128; Barrera Anton 2000: 195; Rodríguez Guttiérrez 2008: 224–226). The work of these men can be found in other cities in Spain, most notably Mérida and Italica.

The economy of Roman building relied on a mix of free agents, like itinerant stoneworkers, unskilled day laborers, and permanently employed forces of workers and managers. Most of the latter consisted of slaves and freedmen working either for contractors or for the emperor. But common sense dictates that large, state-sponsored building projects cannot have relied on a permanently employed labor force, especially of the unskilled kind. Indeed, one important motivating factor in imperial projects in Rome, and probably in major building programs in other Roman cities too, was to provide employment (Brunt 1980). The emperor Vespasian famously rebuffed an engineer who had devised an inexpensive method of transporting heavy columns to rebuild the Temple of Capitoline Jupiter, "saying that he must be permitted to feed the commoners" (Suet. *Vesp.* 18). On-site and off, large building projects required a huge force of day laborers. The massive earthworks, the mixing and laying of concrete, the quarrying of clay, sand, and stone, the slaking of lime and breaking of stone to produce concrete, the feeding and driving of transport animals, the loading and unloading of materials, the manning of capstans and treadmills – these constituted most of the labor (DeLaine 1997: 175–194; Homer-Dixon 2006: 31–55). Yet, apart from sporadic references to wages, usually a fixed sum for a day's work (e.g., Cato, *Agr.* 22.3; *Matt.* 20.1–16; *Luke* 10.1–7), they leave barely a trace in recorded history. In

Diocletian's Price Edict, their wage was 25 *denarii* (=100 *sestertii*), half that of skilled tradesmen (7.1a; Lauffer 1971: 118). Scattered evidence suggests that some tenants of imperial rural property paid their rents with corvée labor, presumably as unskilled workmen on imperial projects (*CIL* 8.8701, 8828; 9.2828; MacMullen 1959: 213–214). In general, though, we must conclude that hiring was an ad hoc affair providing welcome employment to local populations. The hired men were too poor and unskilled to belong to an association and thus left no tombs or inscriptions behind. Their wages were probably supplemented in kind, especially with food (Duncan-Jones 1982: 11). Mostly they were dirt farmers or the freeborn urban poor, many of whom lived in greater penury and uncertainty than slaves (Brunt 1971; 1980; Skydsgaard 1980; Anderson 1997: 119–127).

2.1. Military building

Military units not only supplied bricks and roof tiles for public buildings in the provinces, they also quarried and often designed, built, and repaired architecture and infrastructure of almost every kind and on every scale (MacMullen 1959: 214–218; Pearse 1974: 158–166). Beginning in Hadrian's time, the army adapted from building mostly in timber, turf, and earthworks to permanent stone and concrete. Many roads, bridges, and city walls around the Empire were products of the army. By the Severan era, it was even expected that military resources (*ministeria militaria*) would be at the disposal of provincial proconsuls to assist with civilian building projects (*Dig.* 1.16.7.1). Actual records of civic buildings constructed by military men are rare but not unknown; for example, between the principates of Nero and Antoninus Pius inscriptions from Thamusidia and Volubilis in Mauretania were erected by the cohorts stationed nearby to commemorate the construction of a public bath, a temple with portico, and a portico alone (*IAM* 249, 317, 498; Camporeale, Papi, and Passalacqua 2008: 288–289). At Bu Njem, Tripolitania, the local legionary detachment built the cella (but not the portico, evidently) of a temple in the early third century (*AnnEpigr* 1976: 698; Brouquier-Reddé 2008: 312).

Our sources record a range of building specialists within the army, including surveyors, architects, builders, watermen, levelers, pipemakers, stoneworkers, and woodworkers (Vegetius, *De re militare* 1.7, 2.11; *Dig.* 50.6.7; *CIL* 6.2454 = *ILS* 2060; *CIL* 6.31165 = *ILS* 2190; Pearse 1974: 152–157). Military engineering and architecture were effectively a single profession. Within the army they were usually pursued by ordinary soldiers (MacMullen 1959: 214–215; Pearse 1974: 153–155). Vitruvius himself probably played this humble role in Julius Caesar's army, but Trajan's superstar architect, Apollodorus of Damascus, shuttled between the military and civilian worlds

(Vitr. *De Arch.* 1.praef.2; Strab. 12.8.11; Dio 69.4; Apollod. *Poliorcetica;* Procop. *Aed.* 4.6.13). *Mensores* – surveyors – are almost emblematic of Roman military expansion (Pearse 1974: 155–156). It was they who partitioned conquered or colonized territory and laid out military camps in all their iconic simplicity, with the two main streets, the *cardo* and *decumanus*, meeting at right angles in the middle. The reliefs on the Columns of Trajan and Marcus Aurelius in Rome show Roman legionaries and auxiliaries building camps, bridges, and defenses (Richmond 1982; Lepper and Frere 1988: 260–266; Coulston 1990; Hanoune 2000; Thill 2010). Even if the nature of the ashlar masonry construction depicted does not always reflect the archaeological reality at the time (Richmond 1982: 21–24; Thill 2010), the attribution of the labor in these reliefs to Roman soldiers themselves – not slaves, captives, or conscripted civilians – seems accurate; literary and epigraphic sources confirm that soldiers did much of the work authorized by the military, even in quarries (Pearse 1974: 158–166).

3. Process

The processes of construction in Roman architecture, with emphasis on such essential properties as sequence, causality, accident, and contingency, have received some attention recently (e.g., Davies, Hemsoll, and Wilson Jones 1987; DeLaine 1997; Lancaster 1999; 2000; Taylor 2003; Heene 2004; Brouquier-Reddé 2008), but remain an understudied dimension of Roman architecture. Neither literature nor inscriptions show any interest in recording these processes; even Vitruvius has little to say about the organization of labor on-site. Appropriately, much of our information about the *realia* of architecture comes from the architecture itself.

Roman buildings are full of clues about their construction and decoration. Much can be learned about the organization of plasterers and wall painters from observing details of their work, especially at Pompeii (Varone 1995; Varone and Béarat 1997). In masonry wall construction, horizontal rows of putlog holes mark the anchor points for wooden scaffolding (DeLaine 1997: 145–149; Taylor 2003: 100–101). The presence of lewis holes for lifting devices on the bottoms of column capitals is good evidence that they were carved upside down and then righted before being lifted into place (Taylor 2003: 240). The impressions of wooden forms appear on the undersides of concrete vaults; in fact, repetitions of the distinctive patterns of each form in a continuous barrel vault may indicate the length of a standard work unit or even reveal the direction in which the vault was built (Ohlig 2000). Sometimes, stones were marked according to sequence, especially in arches; this usually indicates that they were preassembled using a template at ground level (Krause

1985; Taylor 2003: 179). Templates themselves – for fashioning arches, pediments, and columns – have been found at a variety of sites, incised in floors or walls (Kalayan 1969; Haselberger 1985; 1994; 1997; Krause 1985; Haselberger and Seybold 1991; Heisel 1993; Wilson Jones 2000b: 56–58, 206–207; see also Chapter 8). Many more diagnostic details could be cited; nearly every site with standing architecture includes them.

Other kinds of information denote piecework. Notwithstanding Diocletian's Price Edict, skilled workers were traditionally paid by the unit produced, not by the job or by hours worked; they seem to have assumed an intermediate position between laborers, paid by the day, and contractors, who were paid a fixed sum, half in advance and half after completion and approval: the so-called *dimidium pecuniae* (Cic. *QFr.* 2.4.2). Architects, on account of their greater prestige, may have received an honorarium plus expenses (DeLaine 2000b: 123). It was essential that a record be kept of the physical progress of their labor. In Rome, there were professional "measurers of buildings" probably charged with assessing work completed for this task (*mensores aedificiorum;* Pearse 1974: 55–57). Workmen left a wide variety of marks and symbols on their work, some of which are still readily intelligible, some not at all. Stonemasons often carved individualized marks on their blocks; their symbols are visible all around the Greco-Roman world. One purpose of periodic horizontal bands of long bricks ("bonding courses") in Roman imperial brickwork was probably to keep track of construction progress and inventory used (DeLaine 1997: 143–145; Taylor 2003: 101–106). Lacking these, lines might be painted at intervals on horizontal courses of brick for similar purposes (Attoui 2008). Occasionally, markings will designate both method and piecework. In a 500-Roman-foot sector of the Augustan aqueduct at Naples, Roman numerals were found incised in the mortar lining every hundred feet along one side, and down the other (Colonna 1898: 67–79). Clearly, the workmen mortared half the channel in one direction and then reversed course to complete their allotment.

3.1. Modeling construction projects

Eloquent as the material remains can be, it is hard to extract information of a more general or comprehensive nature from them – for example, the size and number of building teams, or their work patterns. Occasionally, something of the kind can be inferred. Sequential segments of the Aurelianic walls at Rome reveal the styles of different work gangs (Richmond 1930: 66–67, 259). Distinctive methods of vault construction in the quadrants of the ground level of the Colosseum indicate that four teams were working concurrently and separately on that building, at least in the early stages (Lancaster 1996: 62–63, 240–242). But to gain an appreciation of a project in its more global sense, one must look beyond the observation of minute details.

One of our earliest sources on any Roman architectural topic, Cato's *De agricultura*, provides the text of a model contract for building a rustic villa (4.1–5). This document dictates that foundations are to be made of mortared fieldstone, the walls of mudbrick; pillars of squared stone are mentioned as well. The contractor fells and shapes the timber for the roof. Payment is made, in effect, by area: one *sestertius* per roof tile. The workers specifically mentioned are a builder-contractor, a lime-burner (for making mortar and plaster on-site), and a plasterer. But others must be presumed, on- and off-site. Squared stone must come from a quarry and roof tiles from a brickyard. Ironwork such as meat racks and window grills, both specified in the contract, require a blacksmith. And always there was the need for unskilled muscle power to move earth and heavy materials. Mud slurry and lime mortar would be mixed on-site, typically in trenches (Adam 1994a: 58–62, 65–73). On a mid-sized project we would expect skilled stoneworkers on-site, as well as a smith to make and repair hardware and tools. The contractor's task would be primarily logistical, controlling workflow and ensuring that men and materials were where they needed to be.

The logistics involved in large building projects were on an entirely different order of magnitude. To gain some understanding of them, one must resort to quantitative models carefully grounded in observation of the building and its site. Modeling of complex Roman construction projects or regimes is a recent development, beginning in the 1980s (Thornton 1986; Thornton and Thornton 1989). In the 1990s, Janet DeLaine and Elizabeth Shirley developed more precise methods of estimating the labor expended on two very different kinds of Roman construction – one at the Empire's core, the other at its fringes (DeLaine 1996; 1997; 2000a; Shirley 1996; 2001). Recently, others have followed suit (Camporeale, Papi, and Passalacqua 2008; Prisset 2008). Even where comprehensive estimates are impossible, attention can be given to the construction processes and the origins of the materials (e.g., Guyard *et al.* 2008).

Shirley focuses on the logistics of constructing a legionary fort, using as her archetype the well-studied site of Inchtuthil in Scotland. Many Roman forts were built initially of timber and sod, only to be remodeled later with stone and concrete and often augmented with elaborate baths and aqueducts. While Shirley gives attention to both phases, her models for the timber phase are more detailed and comprehensive. Still, they rely on a high degree of conjecture, for no Roman timber fort has survived above ground level. The reconstruction of the process gives meticulous attention to archaeological details such as timber preparation and joinery; here the long British tradition of experimental archaeology has assisted considerably. Shirley estimates the overall labor requirement for the timber-phase construction at just over 2,440,000 man-hours for on-site construction; 2,000,000 for labor of other kinds;

1,280,000 for provision of local materials; and 1,326,000 for transport of materials, food, fodder, and water – totaling 7,046,000 man-hours – a conservative estimate, especially in the provisioning sector. One can try to control for hypotheticals, such as distance from quarries and the length of the workday or of the building season, but the great unknown that challenges statistical remedy is the size of the workforce. The absolute ceiling would presumably have been the full Roman legion that the fort was designed to accommodate, about 5,200 men; but military priorities, such as security and training, would occupy much of this force. Just a few hundred workers would stretch the project over many years. Two to four years seems a reasonable timeframe for construction, taking into account gaps for campaigning, training, and so forth. So on a sliding scale between 600 and 1,000 workdays at maximum efficiency, a labor force of between 1,465 and 880 men would have been required. One of Shirley's most interesting conclusions is that in the timber phase, a full 47% of on-site construction was occupied with the buildings, more than twice the requirement for the earthworks of the rampart (21%). Monumental masonry construction, as we shall see, required so much displacement of earth with heavy foundation material that the ratio of above- to below-ground work was practically inverted.

DeLaine, by contrast, has concentrated her work on Roman building in central Italy. One of her motivations was to test a longstanding presumption that the well-known evolution of techniques from ashlar masonry to *opus incertum*, then *opus reticulatum*, and finally brick-faced concrete, happened for reasons of economy and efficiency. Proceeding with the caution and thoroughness of an engineer, she bases her estimates for various kinds of labor on nineteenth-century building handbooks. (Of course, there is no equivalent of *opus incertum* or *opus reticulatum* in post-Roman practice, so those estimates stem from educated guesses.) In general, her work vindicates the traditional point of view. According to her calculations, *opus incertum* allowed for the positioning of 400–500 facing units per day; *opus reticulatum*, about 700; and brickwork, 500–1,000, depending on the fineness of the work. These estimates were done without the benefit of experimental archaeology, which could help to refine them. Why, we may ask, was the technique of *opus incertum* less efficient than *reticulatum*, given that each element of reticulate must be more carefully shaped, partly by the saw and partly by the hammer? At many sites, it is evident that the elements of *opus incertum* were produced exclusively and rapidly with the trimming hammer, having no need for the saw or chisel whatever; *opus incertum* required no shaping of stone on-site at all. In many cases, the mason did not even need to pause to *select* stones. Elements of different sizes and shapes could be pieced together almost arbitrarily, the irregular gaps sealed with mortar (Adam 1994a: 127–128). Reticulate, then, is surely more labor-intensive, but only if one factors in transport of the stone.

So while DeLaine's estimate for *incertum* may arouse doubts, she is surely right that the switch to *opus reticulatum* sprang from its success as an efficient way to reuse abandoned tuff blocks already abundantly available at the central-Italian sites where the technique was developed. If you eliminate quarrying and transport, the relative inefficiency disappears.

DeLaine has applied her method to buildings in Rome and Ostia. Those at Ostia are particularly well preserved, and many of them belong to relatively narrow chronological bands of intensive building in the second century. The Insula of the Paintings, datable by its brick stamps to the mid-120s, proved a good test case, preserving not only a significant amount of the original masonry up to the third floor (a total of four floors is presumed, a conservative guess), but also a pattern of joist holes that allow for an accurate estimate of the amount of timber employed (DeLaine 1996). An important factor in choosing such a building is its relative lack of expensive and labor-intensive decorative work, apart from the standard wall frescoes. In this sense it differs from another project DeLaine quantified, the Baths of Caracalla (1997; see Chapter 16). Carefully accounting for the sources of building material and the effort and cost involved for their production and transport (though not for quarrying or selection and cutting of timber), the estimate, based on a 12-hour workday and a 300-day work year, suggests that 25–30 men were continuously employed on the *insula* for four years. DeLaine takes her conclusions a step further, venturing labor estimates for the four periods of intensive building at Ostia in the second century. This is possible because of the widespread use of stamped bricks in Ostia and the extraordinary state of preservation of the urban core, much of which was built using similar standards. Applying the basic unit derived from the Insula of the Paintings, 1,000 man-days/m^2, she estimates that in the aggregate, about 20 years of building occupied, very roughly, about 1,000 men for 300 days a year. This estimate bristles with caveats, but it is meant as an order of magnitude, nothing more. The work year, chosen more or less at random, is anything but conservative, given that Roman holidays were many, and that building in general, and concrete work in particular, was a seasonal affair; but the exercise is still very useful. It puts the 350-odd members of Ostia's *collegium fabrum tignuariorum* in some perspective, confirming an existing hypothesis that the association members were men of modest standing, overseeing on average only a handful of subordinates.

Taking DeLaine's work as a point of departure, Thomas Homer-Dixon and Karen Frecker have produced a lavishly detailed estimate of the amount of energy consumed on the construction of the Colosseum (Homer-Dixon 2006: 31–55). This is a sensitive task, given that any large project is a classically open system involving a virtually infinite regress of energy-consuming events. They choose to sidestep this hall of mirrors by confining the system to

tasks primarily dedicated to supporting the project in question, that is, for which payment might be expected in the contract. Homer-Dixon and Frecker frame the problem in terms of the caloric needs of the people and animals involved directly in construction. The final calculation, relying on values established by specialists in architectural and economic history, nutrition, physics, engineering, and other disciplines, is quite conservative. While it includes as many proximate causes as possible for the production, transport, and positioning of the basic materials of the building, it excludes equally legitimate factors for which evidence is insufficient to support an estimate, for example, design process, decorative sculpture, and waterworks. The estimated total is 44 billion kilocalories of energy, requiring the annual cultivation of 55 km^2 of land. Astonishingly, the feeding of oxen alone accounted for 77% of the total; the remaining 23% fed all the 2,135 laborers over the project's five seasons. Equally surprising is the conclusion that the 13-m-deep concrete foundation of the Colosseum accounts for two thirds of the total mass, and is thus the dominant on-site component of the enterprise.

Several of the subfields discussed in this chapter – particularly marble studies and quantitative modeling – are relatively young disciplines. Ongoing work in these and sister disciplines, such as archaeology and epigraphy, promises to reveal much more about the people and processes involved in Roman building. More important than these developments, however, is the increasing realization by archaeologists that they have the tools to interpret the architecture on their sites as more than just reconstructed buildings, but also as workplaces.

GUIDE TO FURTHER READING

Before proceeding to the individual sources cited here, readers who are unfamiliar with Roman architecture should do some foundational reading on materials and techniques, for which the best general introduction is Adam (1994a). Anderson (1997) provides an excellent survey of the business of building in a social and historical context; DeLaine (1996; 1997; 2000a; 2000b) and Shirley (2001) provide more in-depth quantitative models of building projects. Taylor (2003) and Lancaster (1999; 2000) address the logic and logistics of design and construction with particular attention to case studies in the city of Rome. On the workforce at Roman quarries, see Fant (1989; 1993) and Adams (2000). Pearse (1974), though not easily available outside major research libraries, remains the most comprehensive discussion of the organization of the building trade in the period from the Late Republic to the High Empire.

CHAPTER ELEVEN

Urban Sanctuaries: The Early Republic to Augustus

John W. Stamper

Introduction

The architectural character of urban sanctuaries in ancient Rome was transformed during the Republic and Empire from a series of individual Tuscan sanctuaries to vast forum complexes with monumental Hellenistic-inspired temples and formal colonnaded spaces. Throughout this period it had a grandiosity of scale and opulence that set Rome apart from neighboring Etruscan and Latin cities. In each stage of development of Rome's sacred architecture, certain key monuments stood out as both innovative and influential, incorporating new materials, structural techniques, and stylistic features. This chapter analyzes the way urban shrines in Rome from the Early Republic to the Empire evolved into a paradigmatic building form and helped shape the urban spaces around them, forming a common religious bond between the Roman population and its rulers.

During the sixth and fifth centuries BCE, sacred architecture was dominated by a combination of Etruscan and Latin influences, manifested in the Tuscan Doric order. Temples featured a deep pronaos with widely spaced columns, a tripartite cella, and overhanging eaves decorated with terracotta revetments. By the second century BCE, Hellenistic influences from Athens, especially the Ionic order, were adopted in temple architecture. The pronaos became shallower, columns more closely spaced, and overhanging eaves were replaced by refined, closely cropped cornices. Around 100 BCE, the Corinthian

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order, again influenced by Athens, was introduced just as large supplies of marble started to become available for building construction and new urban planning models began to be followed. The Corinthian order, the use of high quality materials, and the development of the forum as the dominant spatial type became standard and remained so until the time of Diocletian.

1. The Temple of Capitoline Jupiter and Its Influence

One of the earliest of the architecturally significant and influential buildings was the Temple of Jupiter Optimus Maximus on Rome's Capitoline Hill (see Chapters 1 and 24). It was more lavish in its decoration and larger in both plan and elevation than any other structure in the region. It was a building constantly cited by ancient writers with admiration and praise. Livy, for instance, called it a temple "so magnificent that it should be worthy of the king of gods and men, the Roman Empire, and the majesty of the site itself" (Liv. 1.53.2–3). It became an important architectural influence for the construction of later temples in Rome and its colonies. There were other precedents and regional traditions that influenced these shrines as well, but it was the Capitoline Temple that played the key role in determining many aspects of their architectural character and of their relationship to the urban setting around them.

According to Rome's own literary tradition, the Capitoline Temple was commissioned by a succession of Etruscan kings, beginning with Tarquinius Priscus, who started work on its foundations in the 580s BCE (Dion. Hal. *Ant. Rom.* 3.69.1–4). The temple proper was completed in 525–509 BCE by Tarquinius Superbus, and although it was constructed primarily by Etruscan builders, it was dedicated in 509 by the founders of the Republic as Tarquinius Superbus was overthrown and sent into exile (Dion. Hal. *Ant. Rom.* 4.61.2–4). Because it was the earthly residence of the city's most important deities, Jupiter, Juno, and Minerva, located on its most prominent hill, and built in a paradigmatic style, the Temple of Capitoline Jupiter played an important role in establishing Rome as a city of monumental architecture as well as superior political and religious authority.

The temple's location on the Capitoline Hill is marked today by various walls, foundations, and floors found in the basements and courtyards of the Palazzo dei Conservatori and the Palazzo Caffarelli, which now make up part of the Capitoline Museums. The many reconstructions of the temple's form and architectural character that have been proposed over the years have been based on analyses of these architectural remains, along with a written description by Dionysius of Halicarnassus from the first century BCE, and Vitruvius's prescription for Tuscan Doric temples, also from the first century BCE (*De Arch.* 4.7.1–5).

The generally accepted reconstruction of the temple was proposed by the Swedish archaeologist Einar Gjerstad, who wrote extensively about it in the 1960s. His plan shows six columns across the front and six down the sides, with lateral extensions of the rear wall in a *peripteros sine postico* manner (Gjerstad 1960: 168–189). The cella, which occupied the rear half of the podium, was divided into three rooms. More recently, A. Mura Sommella (1998) suggested that a platform extending northward from the temple's back wall is evidence that there were two additional rooms behind the main cella block. My book, *The Architecture of Roman Temples* (2005: 25–38), argues that the Capitoline Temple was not as large as proposed by Gjerstad, and based on a comparison with other Etruscan temples, the presence of additional rooms behind the cella would seem unlikely (Gjerstad 1960: 176–177; Mura Sommella 1998: 57–79; for these reconstructions, see Chapter 24)).

After analyzing the perimeter of the excavated foundations and the description by Dionysius of Halicarnassus, Gjerstad concluded that the overall podium was 53.50 m wide × 62 m long (180 × 210 Roman feet (RF)) (Dion. Hal. *Ant. Rom.* 4.61.2–4). This would have been a colossal temple indeed, with interaxial dimensions of as much as 12 m (40 RF). It would have been far larger than the Parthenon in Athens and proportionally three times larger than any other Etruscan temple.

I proposed an alternative reconstruction of the Capitoline Temple because I believe it was not possible to build and maintain such a large temple with the available technology in sixth-century-BCE Rome. There would have been a significant amount of deflection of the wooden lintels spanning between the columns due to the thousands of pounds of framing structure, fictile revetments, and terracotta statuary overhead. This would have been an especially serious problem considering the temple stood for nearly five hundred years before its first destruction by fire and subsequent rebuilding (Stamper 2005: 19–33).

The alternative reconstruction, based on a different interpretation of the foundation wall visible in the enclosed courtyard of the Palazzo dei Conservatori, suggests that the temple's dimensions were less than those stated by Gjerstad by at least one third. It suggests that the temple structure was not placed on a level, cubical podium, but on top of a series of terraced platforms (Figure 11.1) (Gjerstad 1960: 176–177; Stamper 2005: 25–30). The podium floor of the temple supported by this terraced foundation, which is defined in part by a 15-foot-high foundation wall visible in the Capitoline Museum, would have measured about 34 m wide × 38.30 m long (115 × 130 RF). A combination of axially aligned and lateral stairs would have led from the podium floor down to the lowermost terrace, which alone would have corresponded to the 180 × 210 RF described by Dionysius of Halicarnassus.

The interaxial dimensions of the Capitoline Temple according to this reconstruction would have been 5.90 m (20 RF) for the side bays and 7.40 m

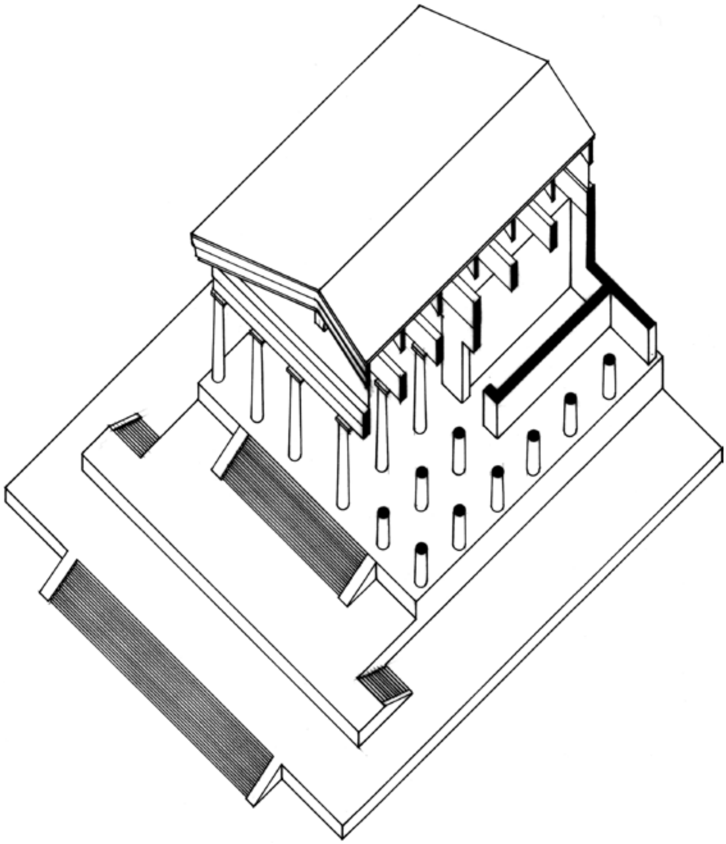


Figure 11.1 Temple of Capitoline Jupiter, Rome, ca. 525–509 BCE; axonometric view of alternate reconstruction. *Source*: Stamper 2005: fig. 18. © 2005 John W. Stamper. Reprinted with the permission of Cambridge University Press.

(25 RF) for the center bay. Following Vitruvius's prescription, the columns would have been 1.47 m (5 RF) in diameter and 11.30 m (38 RF) high. The structural bay of 20 to 25 RF would have been more feasible to construct in the sixth century BCE and is more likely to have stood for 500 years without serious structural compromise.

In this reconstruction, the Capitoline Temple still would have been the largest temple in the Etruscan world and certainly the most important in political and religious terms. Because of its size, prominent location, political symbolism, and dedication to the important deities Jupiter, Juno, and Minerva, it should be obvious that the Temple of Capitoline Jupiter influenced the design of subsequent temples in Rome and its surroundings during both the Republic and Empire (Stamper 2005: 32). This assertion, based on the role of precedent in temple design, lends to the study of Roman architecture a degree of unity and underlying consistency. Rather than the city's earliest and most

important temple being thought of as an isolated giant with no direct formal relationship to what came after, it should instead be considered for its paradigmatic influence on the design of subsequent temples. Rather than being three times as large as all other known Etruscan temples, the alternate reconstruction suggests it was only twice as large; rather than being almost twice the size of later imperial temples such as the Temple of Mars Ultor or the Pantheon, it was virtually the same size. It was a building that later architects directly emulated, even while the plan type was transformed from six columns across to eight, from *araeostyle* to *pycnostyle*, and from three *cellae* to one. As it was the temple that possessed the most authority, the one most directly related to the city's founding, its importance cannot be underestimated as a symbol of Rome's political and religious aspirations, its vision of grandeur and power.

The temple's symbolic importance was magnified by its presence on the southern summit of the Capitoline Hill, where it faced east across the Tiber River Valley and the Aventine Hill. Its facade and east flank could be seen from both the Roman Forum and the Tiber River, and its north wall was prominently visible from the Campus Martius (Stamper 2005: 6). It had a *templum*, or rectangular sacred space in front for taking the auspices, and an altar was aligned with its main axis. There were other, smaller shrines and secondary buildings in its immediate vicinity, the number of which grew over time.

The city of Rome grew rapidly during the early decades of the fifth century BCE, and the construction of urban sanctuaries increased accordingly to provide earthly dwellings for the ever-expanding pantheon of deities. The Temple of Saturn and the Temple of Castor and Pollux, built in the first two decades of the fifth century BCE, were the earliest examples in the Roman Forum influenced by the Capitoline Temple, though they were smaller in scale and had fewer columns (Dion. Hal. *Ant. Rom.* 6.1.4; 6.13.2).

A revealing comparison can be made between the Temple of Castor and Pollux and the Capitoline Temple in terms of the interaxial dimensions between their columns. The original Temple of Castor and Pollux was tetrastyle, with a deep pronaos, and a three-room cella. Recent archaeological studies suggest that its podium was 27.50 m wide × about 37 m long (93 × 125 RF) (Nielsen and Poulsen 1992: 243). The interaxial spans of its pronaos columns would have been about 7.50 m (25 RF), nearly equal to the central span of my proposed reconstruction of the Temple of Jupiter. This suggests that the central portion of the Capitoline Temple – the pronaos and cella without the side aisles – was the direct model for the Temple of Castor and Pollux, and possibly for the Temple of Saturn as well.

A similar comparison can be made with the twin temples of Fortuna and Mater Matuta in the Forum Boarium. The latter was the older of the two, first built in the 580s BCE, when Rome was ruled by Etruscan kings. It was later

rebuilt on a larger plan, and in the 490s the Temple of Fortuna was built alongside it. Each temple was raised on a cubical podium measuring about 21 m (71 RF) wide; each had a three-bay composition; and each had a deep pronaos enclosed by side walls which framed two columns *in antis*. They both had an interaxial dimension in the center bay of about 7.50 m, again, similar to that of the Capitoline Temple. Urbanistically, these two temples are among the first to be built side by side, their facades aligned, and sharing a common *templum*.

The influence of the Capitoline Temple reached many of Rome's colonies. In Cosa, for instance, the construction of a temple thought to be the Capitolium was begun in ca. 150 BCE to replace an earlier temple on the site (Brown 1980: 11). Its plan consisted of a tripartite cella and a deep pronaos with four columns across the front. The temple measured 20.6 m wide (70 RF), though the overall dimensions of the podium were 23.24 m wide × 27.40 m long (79 × 93 RF). Its principal architectural features – its Tuscan Doric columns, the equal division of the plan into the pronaos and cella, and its squat appearance with overhanging eaves – are clearly linked to the tradition of Etruscan and early republican temples in Rome (Figure 11.2). The influence of the Capitoline Temple in Rome is again seen in the relationship of the bay sizes, the lateral bays of both temples measuring 6 m, with the central bay being wider, 7.50 m (Brown 1980: 52). Again, the central three bays of Rome's Capitoline Temple were the direct model for Cosa.

The tradition of temple architecture during the Republic thus took on many variations, although always remaining identified with its roots in sixth-century-BCE Etruscan and Latin precedents and its first great achievement, the Temple of Capitoline Jupiter. The defining features of the "Tuscan" style – a high podium, sometimes terraced, a deep pronaos, widely spaced columns, and terracotta decoration – remained dominant in fact for a period of at least 250 years, if not more. Throughout this period the Temple of Capitoline Jupiter remained a primary reference stylistically and symbolically in Rome and its colonies.

In terms of the temples' relationship to their sites, there was a diversity of urban forms during the early republican period. Some, like the Temple of Capitoline Jupiter and the Capitolium in Cosa, were isolated on a single platform, with a *templum* in front and containing an altar on axis with the temple. Others, such as Rome's Temple of Fortuna and Mater Matuta, plus those in the Forum Holitorium and Largo Argentina, were lined up in rows, some sharing a common platform, each with its own rectangular forecourt and altar (Boëthius 1978: 165). Just as with temple architecture, the definition of the sacred space around them would undergo a significant change over the course of the Late Republic.

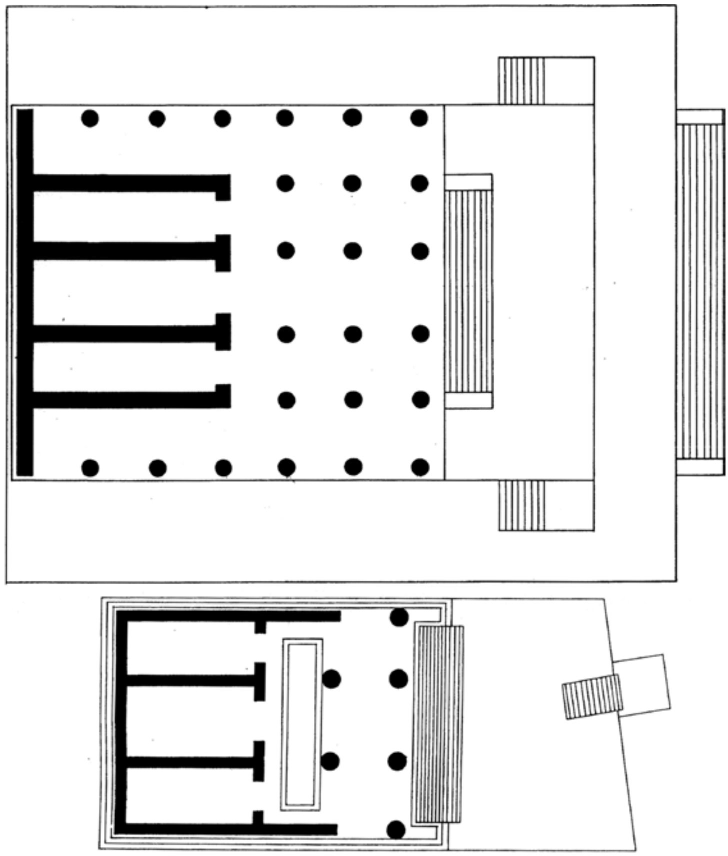


Figure 11.2 Temple of Capitoline Jupiter, Rome, plan of alternate reconstruction (above); Capitolium, Cosa, plan (below). Both at the same scale. *Source*: Stamper.

2. Hellenistic Influences in the Second Century BCE: The Ionic Order

During the second century BCE, after the Punic Wars against Carthage and the conquering of Macedonia, Greece, and Syria, the Hellenistic architecture of these areas began to have a profound effect on Roman architecture, while the immediate influence of the Capitoline Temple waned (see Chapter 2). The conquest of Greece, in particular, from the 190s to the 140s BCE gave the Romans access to all of the important Greek temple complexes, including those at Athens, Delphi, and Corinth. This fostered the first important wave of direct Greek influence on Rome's architecture and urban design. The transition to a new Hellenized style is especially evident in the temple structures in and around the Roman Forum, the Circus Flaminius, the Forum Holitorium, and the Forum Boarium.

With these temples we see a divergence from the model of the Capitoline Temple as the plan compositions were no longer *araeostyle*, but rather, *pycnostyle* or *eustyle*, that is, with more narrowly spaced column bays, and cellas designed as a single room rather than three. Most important, the Tuscan Doric order was used less frequently, as preferences shifted to the Ionic and Corinthian orders while higher quality materials such as marble and travertine became more readily available. To the already mentioned relationships between the temples and their sites was added the temple in an enclosed courtyard surrounded by colonnades. This more formalized convergence of religious and civic space marked a new stage of development in Roman republican architecture that reflected further the influence of the Greek East, not only in terms of the orders but of urban design as well.

The temples of Juno Regina and Jupiter Stator in the Porticus Metelli (later Octaviae) were among the earliest in Rome to exhibit these influences of Hellenistic sources. The former, begun in 187 BC and completed in 179 BC, had six columns across the front, probably Ionic, and a pronaos three bays deep (Viscogliosi 1996b: 126–128). The Temple of Jupiter Stator, begun in 143 BC and dedicated in 131 BC, was built by one of Vitruvius's most favored Greek architects, Hermodorus of Salamis (Vitr. *De Arch.* 3.2.5; Viscogliosi 1996c: 157–159). Vitruvius described it as the first temple in Rome to be built of marble, including both its columns and cella walls. It was a peripteral temple, with six columns on the front and rear, and 11 on the flanks (Vitr. *De Arch.* 3.2.5).

The Porticus Metelli (Figure 11.3) was constructed around both temples in 131 BCE, making it one of the earliest examples in Rome of a temple complex enclosed by a formal colonnaded space (Coarelli 1997: 487). It was a large, nearly square enclosure with a double portico on all four sides, with its entrance gate facing southwest onto the Circus Flaminius (Vell. Pat. 2.1.2). Metellus contributed a group of equestrian statues, which were brought as spoils of war from Macedonia to the space around the temples. It became a commemorative civic and religious space that would have a great influence on the urban development carried out by later dictators and emperors, from Julius Caesar and Augustus on.

The best preserved temple from this period, demonstrating the influence of Hellenistic architecture and the dominance of the Ionic order, is the Temple of Portunus, located in the Forum Boarium on the north bank of the Tiber River (Buzzetti 1999: 153–154). Built between 100 and 80 BCE, it exhibits a combination of Hellenistic and Etruscan architectural influences, with an Etruscan-style podium, a frontal approach, and a deep pronaos, combined with Hellenistic Ionic columns, pilasters, and entablature. Its sacred space was defined on each side by porticoes (now no longer visible) that extended to the street leading to the Pons Aemelius. It was a small enclosure, but it served nevertheless as an effective way to isolate the temple from the otherwise crowded and chaotic port and market area.

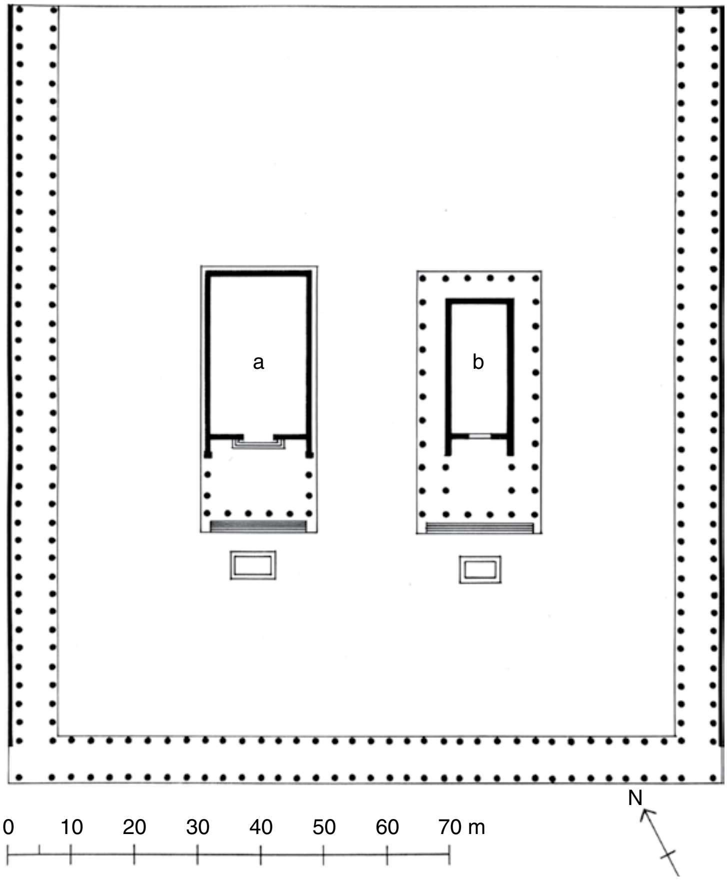


Figure 11.3 Porticus Metelli (Octaviae), Rome, 187–131 BCE: (a) Temple of Juno Regina; (b) Temple of Jupiter Stator. *Source*: Stamper after Lanciani 1990; Stamper 2005: fig. 36. © 2005 John W. Stamper. Reprinted with the permission of Cambridge University Press.

The temple's pronaos has four columns across and two deep, while its cella is lined with five engaged half-columns on the sides and four on the back, thus a pseudoperipteral plan. The intercolumniations are a little over two times the diameter, 1 to 2.15 on the long sides and 1 to 2.20 on the short sides, which correspond to Vitruvius's *eustyle* (*De Arch.* 3.3.7; Ruggiero 1991–1992: 268); considered *systyle* in Wilson Jones 2000b: 58). Its pseudoperipteral composition is what Vitruvius described as a unique Roman synthesis of temple categories in which the builders remove the temple walls, transferring them to the intercolumniations (*De Arch.* 4.8.6).

Since the Temple of Portunus was built before marble became widely available as a construction material in Rome, it represents a continuation of older Roman building practices, with its podium, columns, walls, and entablature

constructed of a combination of locally quarried tuff and travertine. The entire structure was covered with a thin coat of stucco at the time of its initial construction. Somewhat later, elements of decoration were added to the walls, columns, and the entablature, most of which have now disappeared (Ruggiero 1991–1992: 266, 272–275; Adam 1984: 235–246).

Other examples of temples representing Hellenistic influence include the Temple of Concord built on the west side of the Forum Romanum in 121 BCE, and a rebuilt version of the Temple of Castor and Pollux in 117 BCE. Both employed the Ionic order, thus introducing the new style into the Roman Forum (Ferroni 1993: 316–317; Ulrich 1994: 89). The Ionic order was introduced into the Forum Holitorium with the Temple of Janus, rebuilt early in the first century BCE, and the Temple of Juno Sospita, restored in 90 BCE. Many of their Ionic columns are visible today in the walls of the Church of S. Nicola in Carcere (Coarelli 1996b: 90–91, 128; 1996c: 128–129; Liv. 32.30.10; 34.53.3).

These temples represent well the extent to which Hellenistic influence in the form of the Ionic order was predominant in Rome during much of the second and the beginning of the first century BCE. It had become appealing and acceptable to Roman builders and the public alike after the capture of Greece and Asia Minor, although it was used typically in conjunction with traditional Etruscan plans, or adapted to fit distinctly Roman cult needs or site conditions. As Ionic temples of mainland Greece and the Ionian coast became accessible as both models and sources of building material, their style of architecture became common in Roman practice, largely replacing the Temple of Capitoline Jupiter and other Tuscan temples as design precedents. This trend continued until the end of the second century BCE, when the pure Corinthian style came to dominate Roman temple architecture, both in its canonical Hellenistic form and in regional variations as architects and builders in Rome and its colonies began to develop their own interpretations.

3. Hellenistic Influences in the First Century BCE: The Corinthian Order

The change from the dominance of the Ionic to the Corinthian order came about fairly quickly, within the first few decades of the first century BCE. As Corinthian temples in the East became increasingly accessible as models, the style of architecture became common in Roman practice. This trend continued through the end of the first century BCE and into the early years of the Empire, until finally, an orthodox Corinthian style became the standard in most Roman temple architecture.

An analysis of the temples from this period also reveals diversity in plan types and facade compositions. As in the second century, there was a wide range of proportional relationships and co-existing stylistic details from direct Hellenistic transplants to regional transformations of the Corinthian order designed and executed by local builders. The buildings represent the presence of competing stylistic trends, each with roots in Hellenistic architecture, but with varying interpretations or adaptations. Equally important was the continuing development of colonnaded enclosures around major temples, as they became increasingly isolated from the surrounding urban fabric, occupying a singular, monumental space that combined both civic and religious functions.

The two most significant urban sanctuaries that introduced the Corinthian order into Roman architecture were the Round Temple by the Tiber (perhaps dedicated to Hercules) and the Temple of Capitoline Jupiter after it was reconstructed in 69 BCE. These two temples represented the direct influence of Greek architecture, in one case, the product of Greek builders and imported marble, in the other case, the reuse of Corinthian capitals from one of Athens' largest Hellenistic temples.

Located in the Forum Boarium, the Round Temple by the Tiber was constructed by a member of the aristocracy, possibly L. Mummius Achaicus, who had a passion for the Corinthian order and Hellenism in general (Strong and Ward-Perkins 1960: 7–8; Ziòłkowski 1988: 309, 316–317). Its circular form was derived from the Greek tholos, such as the fourth-century examples at Delphi, Epidaurus, and Olympia, but here used for religious cult purposes rather than a funerary function. Its most outstanding feature was its highly refined Corinthian columns, built of Pentelic marble, standing 10.60 m high and organized in a *pycnostyle* composition (Wilson Jones 1989b: 114–117).

The temple's cella wall, likewise composed of Pentelic marble revetments on a travertine core, shows the influence of Hermogenes in the second century BCE, and its coursing pattern became influential in subsequent temple design. The strong evidence of Greek influence, the details of workmanship, and the use of imported marble suggest that the Round Temple was a pure product of Greek builders.

It was at this critical time of transition to the Corinthian order in Roman temple architecture that the Temple of Capitoline Jupiter was destroyed by fire and rebuilt by Sulla and Quintus Lutatius from 83 to 69 BCE. Pliny writes that Sulla took columns dating from the second century BCE from the unfinished Temple of Olympian Zeus in Athens to be used for temples on the Capitoline (Pliny *HN* 36.4.45). He used them specifically for the Temple of Capitoline Jupiter, with either full columns or just the capitals from the Temple of Olympian Zeus, thus transforming it at least in part from a Tuscan Doric to a Corinthian temple (Boëthius 1962b: 27–33; Gjerstad 1962: 35–40). It

would be further refined as a Corinthian temple in the first century CE, when Vespasian and Domitian would rebuild it again with columns from the Temple of Olympian Zeus (Tac. *Hist.* 4.53.10–36; De Angeli 1996: 151).

While the Capitoline Temple would not have been the first example of the use of the Hellenistic Corinthian order in Rome, the appearance of the order in such a prominent building would have greatly added to its appeal. With this change, the Temple of Capitoline Jupiter continued to embody the very notion of the Roman state itself and once again became an important model for temple design. It enjoyed almost universal recognition as the embodiment of cultural values, religious ceremony, and political authority. It heightened the moral and civic sensibility of Roman society, providing it with an important symbol. Successive rituals and ceremonies repeatedly brought Roman society into contact with this sacred vessel of cultural and religious values, and its change to the Corinthian order kept it in step with evolving architectural conditions.

The Round Temple by the Tiber and the rebuilt Capitoline Temple were, however, the exceptions in terms of being products of direct Greek interventions. Most other temples of the period represent a central Italian version of the Corinthian order, built by local masons and often with inferior material. The Temple of Vesta in Tivoli, for instance, from early in the first century BCE, is one such example (Rakob and Heilmeyer 1973: 30; Boëthius 1978: 163). Stylistically, it is an example of an Italian transformation of the Corinthian style which is distinct from its Hellenistic sources in terms of the details of the column capitals, fluting of the column shafts, decoration of the frieze, and the use of travertine and brick-faced concrete rather than marble (Stamper 2005: 75).

Equally at variance with the Greek model of the Round Temple by the Tiber is the circular Temple B, Fortuna Huiusce Diei, in the Largo Argentina. Constructed in 90 BCE, it was in the midst of three rectangular temples, all of their facades aligned, and each with an altar placed on axis with its pronaos. Temple B was a similar building type, but like the Temple of Vesta in Tivoli, it represented a distinctly different quality of craftsmanship and materials, with its Corinthian columns with tuff shafts and bases and capitals and cornice of travertine. Its indigenous two-part travertine capitals, showing Greek and Asiatic influence, represent an extended period of Roman adaptation of the Corinthian order, which lasted until the time of Julius Caesar (Fagerlind 1932: 121; Rakob and Heilmeyer 1973: 28–30).

The comparison of these temples reveals the diversity evident in the circular temple as a building type and in the design of the Corinthian order in Roman architecture during the first century BCE. The order was used in a variety of proportional relationships, and the execution of its details ranged from Hellenistic purity to the inventive adaptations of local builders. There were

parallel stylistic trends, on the one hand representing a direct importation of Hellenistic building materials and expert craftsmen, and on the other hand, interpretations that depended on regionally available building materials and master masons trained in Rome or the provincial towns in which the temples were located.

4. The Temple and Forum in First-Century-BCE Rome

By the middle of the first century BCE, Rome's temple and forum architecture became increasingly more monumental, the use of marble as a building material and the Corinthian order lending it a new quality and grandeur. The temples were made larger than their earlier counterparts, their height was greater, and their building materials were more exotic (Gros 1996a: 140–144). New settings were devised for cult temples to make them appear even more grandiose. In one case, the temple was placed at the top of the *cavea* of a theater, in another, it was at one end of a long rectangular space lined with porticoes. At the same time, the use and connotations of authority began to change as some of the temples were built to honor both a traditional deity and a person – the general, dictator, *princeps* – who took on a public role similar to that of the gods (Gruen 1974: 6–7).

One of the most ambitious architectural undertakings of the period was the sprawling complex in the Campus Martius made up of the Theater of Pompey, the Temple of Venus Victrix, and a giant *porticus* surrounding a formal garden (see Chapters 2 and 3). Known collectively as the *opera Pompeiana*, the complex was begun in 61 BCE – just after Pompey the Great's most important foreign conquests – and dedicated with a series of spectacles in 55 BCE (Gleason 1994: 13; Gros 1999; 2000). The theater, the first in Rome to be built entirely of masonry and concrete, had a semicircular plan measuring 162 m in diameter, the circular steps of the *cavea* providing enough seats for approximately 12,000 spectators (Lugli 1970: 429). The temple shrine of Venus Victrix was located on the theater's main axis stepping up to the top of the *cavea*, while its altar was presumably incorporated into the steps directly in front of its pronaos (Tert. *De Spect.*10). The theater's curved outer facade was composed of a multi-level pier-and-arch structure with engaged half columns (Greenhalgh 1981: 54).

A *porticus* surrounding a large rectangular garden extended eastward from the theater and temple. This enclosure, the first public park in Rome, was highly influential in subsequent urban design, especially for the imperial forums (Gleason 1994: 13–15). Vitruvius described such porticoes as being designed to provide sheltered walkways, protecting people from wind, rain,

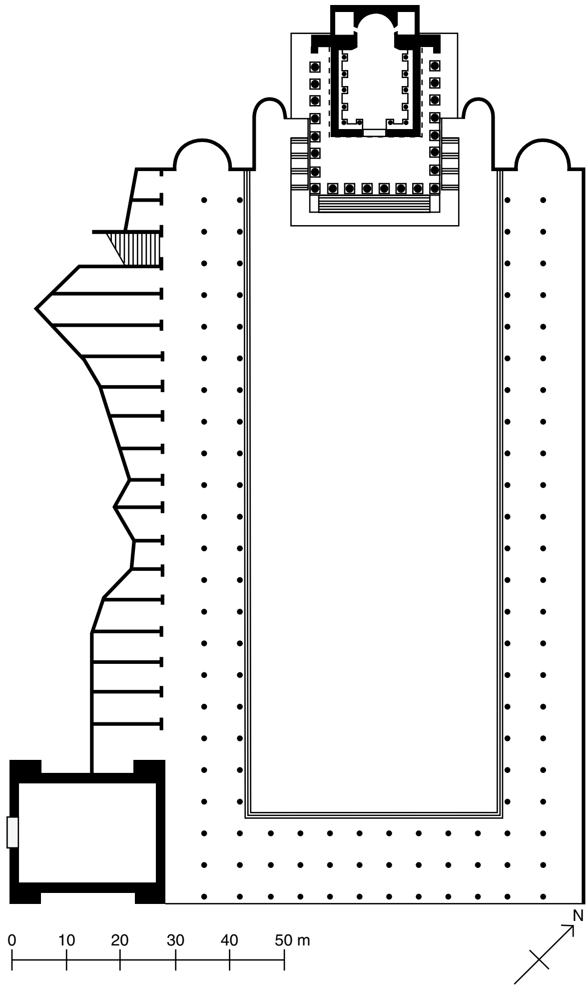


Figure 11.4 Forum of Julius Caesar, Rome, plan. *Source*: Stamper after C. Amici 1991; and P. von Celsing, Fototeca Unione, American Academy in Rome FU 13772; Stamper 2005: fig. 74. © 2005 John W. Stamper. Reprinted with the permission of Cambridge University Press.

heat, and cold (*De Arch.* 5.9.1). As with the Porticus Metelli, they housed collections of sculptures and exhibitions of paintings that had been captured in military conquests. They also provided localized urban unity, conveying a sense of orderliness, while creating a well-defined alternate political space outside the Roman Forum (Favro 1996: 170; Corso 1997: 389–391).

The *opera Pompeiana* were a direct precedent for the largest urban undertaking of Julius Caesar, his forum and its Temple of Venus Genetrix (Figure 11.4). Begun in 54 BCE, its intended purpose was to provide additional space for the activities of the Roman Forum, especially the law courts

(App. *BCiv.* 2.102–424; Weinstock 1971: 80–81; Ulrich 1993). Caesar also anticipated creating a spectacular architectural setting where he could deliver speeches and preside in a regal manner over public ceremonies (see Chapter 3).

In this case, there was no theater involved. Rather, the plan of the forum space was laid out to focus effectively and dramatically on the pronaos of the Temple of Venus Genetrix as a sort of theater stage. The space was a long, narrow rectangle, its interior dimensions extending 120 m in length × 47 m wide (407 × 160 RF). By contrast, the main axis of the Theater of Pompey and the Porticus Pompeiana extended 287 m, over twice as long (Gleason 1994: 14–17). Even so, this was a grandiose setting given the length of the space relative to its width, the repetitive rhythm of the flanking colonnades, and the tall podium on which the temple stood.

The Temple of Venus Genetrix measured 23 m wide × 33 m long (78 × 112 RF). Augustus later increased the depth and width of the podium, making it 29.50 m wide (100 RF) (Amici 1991: 31–35, 51; Ulrich 1993: 70, 77). The temple's plan was octastyle with eight columns on each side, with the cella's rear wall projecting at the sides and turned 90 degrees to align with the columns in a modified *peripteros sine postico* manner. The use of narrow intercolumniations corresponded to the *pycnostyle* arrangement (Vitr. *De Arch.* 3.1.2).

The *opera Pompeiana* and the Forum of Julius Caesar are significant not just because they were the largest monumental formal spaces to be constructed during the Republic outside the Roman Forum, but also because they mark a further development in the transformation of Roman urban design. Placing a temple within a formal enclosure served to isolate it from the surrounding urban fabric while forming a unified urban composition. This would be the model for much of Rome's subsequent urban development, with emperors from Augustus to Hadrian constructing monumental temple and forum complexes.

5. Urban Sanctuaries in the Time of Augustus

Rome's urban development and temple building in fact increased dramatically during the time of Augustus (see Chapter 3). In his capacity as triumvir and then as emperor from 27 BCE to 14 CE, Augustus restored many of Rome's existing religious buildings and built countless new ones. It is recorded in the *Res Gestae* (4.20) that he "restored eighty-two temples of the gods within the city, neglecting none that then stood in need of repair." Using marble from Carrara and northern Africa, he commissioned new temples and rebuilt old ones, changing significantly Rome's architectural and urban character (von Hesberg 1988: 93–97; Favro 1996: 183–186).

In general, the architecture of the Augustan period represented an important transformation characterized at first by experimentation and diversity. The Corinthian order was now the most widely used stylistic feature as stone carvers gained experience and the quality of the work improved markedly. By the time of the Flavian emperors, the language of the order developed into a fully orthodox Corinthian style, setting a new standard for the rest of the Empire (Wilson Jones 2000b: 139). At the time of Augustus, however, there was a dynamic tension between formal variety and unified conceptualization (Galinsky 1996: 142). No two temple structures were exactly alike, although many of them shared common features. The architectural vocabulary had clear Greek origins, but there was a variety of Roman interpretations, each temple incorporating a different form of Corinthian capital, treatment of moldings in the entablatures, details of modillions, not to mention variations in plan types.

The spatial settings of temples likewise continued to evolve during the reign of Augustus. Temples, or groups of temples, continued to be isolated in forum spaces defined by colonnades, and in the Roman Forum itself there were numerous efforts made to regularize the space through the reconstruction of the basilicas and temples and the addition of a second rostrum. The podium heights of some temples were increased as part of the reconstruction projects, in some cases, in order to create horizontal alignments of podia or entablatures between temples across the forum's space. For example, a recent study using a laser scan technique by architect Krupali Krusche shows that the entablatures of the Temples of Saturn, Vespasian, and probably Concord at the forum's west end were horizontally aligned. The increased podium height, along with more elaborate stairways and statuary, not only helped formalize the forum space, but also made the individual temples more monumental.

Virtually the entire Roman Forum was a construction zone during Augustus's reign as he and his political favorites built or rebuilt nearly all of its buildings in an attempt to restore its role as the principal civic and religious center of Rome and the Roman world. When we consider Augustus's statement, "I found Rome built of bricks; I leave her clothed in marble," we are especially drawn to images of the forum (Suet. *Aug.* 28.3). The two most important examples from the early years of his reign were the Temple of Deified Julius, from 42 to 29 BCE, and a rebuilding of the Temple of Saturn, from 42 to 30 BCE.

The Temple of Deified Julius was placed on a high podium that was faced with travertine blocks and marble revetments, the podium measuring 26.97 m wide × 30 m long (91 × 102 RF) (Gros 1996b: 118). It had lateral stairs at each side similar to those of the Temple of Venus Genetrix, and its front wall, which had a semicircular niche with an altar in the center, projected out beyond the facade columns (Taylor 1990: 41; Gros 1996b: 118).

It had a *pycnostyle* layout, hexastyle, Corinthian, and blank walls on the sides and rear except for corner pilasters. The cornice had dentils and one of the earliest uses of modillions in Roman temple architecture. Straight across the front and flat on the bottom, they suggested the idea of support for the cornice, like small projecting beams (Strong 1963: 74–75). Derived from Greek precedents, they became common in temple architecture during the Augustan period, both in exterior applications and in interior decoration and fresco painting (Ward-Perkins 1967: 28).

At the forum's western end the original Tuscan style Temple of Saturn was replaced in 42 BCE by a new one in the Hellenistic mode. It was pseudoperipteral, with six columns across and three deep in the pronaos, and its cella walls articulated with engaged pilasters (Pensabene 1984: 48; Coarelli 1999: 234). The fourth-century columns and capitals of the pronaos standing today are the result of a rebuilding after a fire.

With these and other building projects carried out during the reign of Augustus, the Roman Forum took on a new sense of organization and monumentality. Although it retained the trapezoidal plan it had from the beginning, there was now a near axial alignment of the Temple of Deified Julius and the Rostra at the opposite end (Stambaugh 1989: 188–189). There was a new formality to its plan that made it more consistent with the Forum of Julius Caesar and forum complexes being developed outside of Rome in Italian cities such as Pompeii, Paestum, and Cosa.

There were numerous other temple projects carried out by Augustus and various members of his court and the military at the end of the first century BCE and the beginning of the next, including sanctuaries on the Palatine Hill and the Circus Flaminius, as well as the first temple on the site of the present-day Pantheon. All of these temples were characterized by experimentation and unique characteristics, though always within the rules of the Corinthian order. Most of these temples had marble Corinthian capitals with precise formal and technical characteristics that showed a clear influence of Hellenistic sources but with a particular Roman refinement (Viscogliosi 1996d: 118–120). In terms of the plan types, there was a Roman tradition that represented a synthesis of Etruscan with the Hellenistic plans preferred by Vitruvius.

One temple in the Forum Romanum is especially indicative of the classical Corinthian style of Augustus's final years: the rebuilt version of the Temple of Castor and Pollux, begun in 7 BCE and dedicated in 6 CE (Nielsen 1993a: 242–243). It was built on nearly the same plan as the second-century version, though in this case it was peripteral, an eight by 11 colonnade (Nielsen 1993a: 242–243). The podium, now measuring 29.50 m × 49.50 m (100 × 168 RF), and nearly a meter taller, was faced with large ornamental marble slabs that projected as pedestals beneath the columns (Frank 1925: 101–102; Nielsen 1993a: 244). Like its earlier phases, it served as a speaker's platform and was

approached from the sides by lateral stairs. The Carrara marble columns were 18.55 m high (50 RF) and supported an entablature with a three-step architrave and a plain frieze (Ward-Perkins 1981: 39–41).

The most ambitious undertaking of Augustus was his construction of the Forum of Augustus and its Temple of Mars Ultor, located north and east of the Forum of Julius. It was begun in the mid-30s BCE, and by the time of its dedication in 2 BCE, it had gained a symbolic nature that surpassed even the original aims of Augustus's military youth. Continuing the tradition of forum construction that had begun with the Porticus Metelli and continued with the *opera Pompeiana* and the Forum of Julius Caesar, it became an integral part of his imperial program, forming a new urban focus for the city and legitimizing Augustus's unprecedented rule (Ganzert 1996: 74–78; Ungaro 1997: 7–9).

The architects of the Temple of Mars Ultor synthesized the components of the Corinthian order – the fluting of the column shafts, the carving of the Corinthian capitals, the use of moldings in the entablature, and the presence of modillions in the cornice – creating a refined and distinguished expression of Roman classicism (Strong 1963: 81; Ungaro 1997: 17). Its exterior was markedly simpler, crisper, and more monumental than its predecessors. It was one of the most perfectly designed and crafted temple structures of the period, employing the Corinthian order in an orthodox way in terms of proportions, dimensions, and motifs, yet embellishing it with new types of ornamentation, especially inside the cella, that was unique to Roman builders (Ganzert 1996: 222–223). It was the definitive statement of the Corinthian order in the first century BCE (Wilson Jones 1989a: 57).

As with the Forum of Julius Caesar, the temple stood at one end of a large forum space measuring 54 m wide × ca. 70 m long (185 × 240 RF), flanked by colonnades with covered passageways (Vitr. *De Arch.* 5.1.3). The temple was placed on a high podium of Roman concrete with tuff and travertine blocks and faced with a veneer of Carrara marble. It was reached by a flight of 17 marble steps, which had a large altar in the middle. Its pronaos had eight columns on the front, three bays deep, and a second row of columns on each side of the main axis, aligned with the cella walls. There were eight columns on the sides, with the aisles ending in a rear wall in a manner similar to a *peripteros sine postico* composition (Ungaro 1997: 17).

Like the Temple of Venus Genetrix and the Temple of Castor and Pollux, the Temple of Mars Ultor had a *pycnostyle* arrangement. There is evidence that the Temple of Mars Ultor was influenced by certain aspects of the Temple of Capitoline Jupiter, in particular, the dimensions of its pronaos. Because its width of 36 m is just slightly more than that of the alternate version of the Capitoline Temple, it is likely that Augustus's architects had a renewed interest in the Capitoline Temple, and perhaps sought to emulate it. It was important for Augustus to make a link to Rome's founding and to the cult of its

oldest deity. A significant aspect of the authority of the Roman emperor was derived from the precedent of Rome's founding, and gestures that recalled the importance of the Capitoline Temple were essential in maintaining this authority. Augustus went further by building a small circular temple to Mars the Avenger near the Temple of Capitoline Jupiter to display the military standards brought back from the war against the Parthians (Zanker 1990: 186–187).

Within the context of Roman temple and forum architecture as a whole, the Temple of Mars Ultor and the Forum of Augustus represent one of the largest and most refined examples of a typology that began with the Porticus Metelli and continued through the theater complex of Pompey the Great and the Forum of Julius Caesar. The use of white marble Corinthian columns, entablatures, pavements, and wall veneers throughout the complex was influenced by Greek and Hellenistic models, but the interpretation of the design vocabulary was distinctly Roman (Viscogliosi 1996d: 131–132). The architects who designed and decorated Rome's most important temples since the time of Julius Caesar, created an individual style that showed the influence of Greece and Asia Minor while being uniquely Roman (Strong 1953: 129). Later forum and temple complexes would be highly influenced by the model set by the Forum of Augustus.

Architecturally, the Temple of Mars Ultor represented the standard for the Corinthian order in Rome during much of the Empire. The proportional ratios, the treatment of the entablature and cornice, and the fluting of the columns were the canon for temple design from the late Augustan period to the second century CE. Trajan would introduce a more decorative treatment of the order, and Hadrian would delve into more experimental details and building forms, representing signs of a renewed attempt at innovation and originality.

The plan of the Temple of Mars Ultor, with eight columns across, a deep pronaos, and a single-room cella, would be a specific reference for subsequent imperial temples; its width of 115 Roman feet, based on the Temple of Capitoline Jupiter, would be the model for several temple and forum complexes (Figure 11.5), including Vespasian's Temple of Peace, built in 71 to 75 and Hadrian's Pantheon from 118 to 128. The pronaos of each of these Corinthian temples ranged in width from 34 to 36 m, each emperor making reference to the Capitoline Temple and the Temple of Mars Ultor, each deriving their authority through their temples' link to Rome's most authoritative religious structures (Stamper 2005: 156–159, 181–182, 186).

The development of the forum as a dominant urban motif is especially evident in the examples presented here. The design of urban sanctuaries from the beginning of the Republic to the Early Empire demonstrates a transformation from a single Tuscan Doric temple in a loosely defined *templum* defined by low

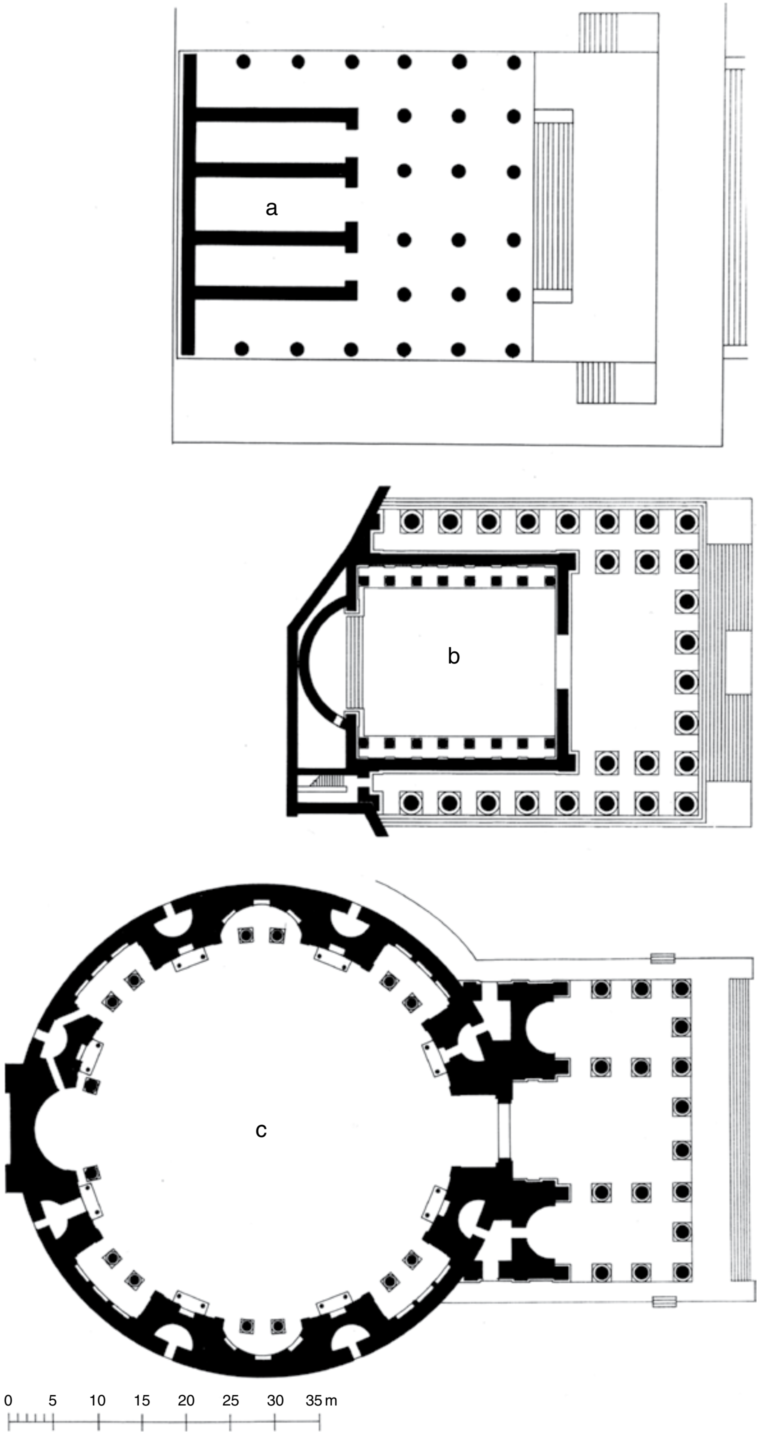


Figure 11.5 Roman temples, plans at the same scale: Temple of Capitoline Jupiter (top); Temple of Mars Ultor (middle); Pantheon (bottom). *Source*: Stamper 2005: fig. 151. © 2005 John W. Stamper. Reprinted with the permission of Cambridge University Press.

perimeter walls to a monumental Corinthian temple surrounded by equally monumental colonnades setting up a formal, axial public space that combined civic and religious functions within a unified urban composition. Such temples and their urban settings were an important aspect of establishing and maintaining authority and legitimacy during both the Republic and the Empire.

GUIDE TO FURTHER READING

The primary sources for this study can be divided into three categories: (1) those related to Rome's Temple of Capitoline Jupiter, (2) books on the architecture of the Republic, and (3) books on the period of Julius Caesar and Augustus.

The best sources for the accepted reconstruction of the Temple of Capitoline Jupiter include two books by Gjerstad (1960; 1966), as well as the more recent study of Mura Sommella (1998). The alternative version is discussed in Stamper (1998/1999; 2005).

Books on the architecture of the Republic include three topographical studies by Coarelli (1983; 1988a; 1997). Books on specific temples from the period include Brown on the site of Cosa (1980); Frank (1925) and Nielsen and Poulsen (1992) on the Temple of Castor and Pollux; Gleason on the Porticus Pompeiana (1994); and Pensabene on the Temple of Saturn (1984). Important studies have been done on the temples in the Forum Boarium, especially Coarelli (1988a), including those that focus on the so-called Temple of Vesta (or Hercules Victor) by Caraffa (1948), Rakob and Heilmeyer (1973), and Ziòłkowski (1988). For the Temple of Portunus, see Buzzetti (1999). Jean-Pierre Adam's *La construction romaine: Matériaux et techniques* (1989; English edition 1994a) provides additional details on construction.

Books and articles on Julius Caesar and his Forum Iulium include those of Amici (1991) and Ulrich (1984; 1993). Books on the architecture and forum planning of Augustus include those of Favro (1992; 1996), Fagerlind (1932), Ward-Perkins (1981), and Wilson Jones (2000b). The most thorough studies of the Forum of Augustus are those of Ganzert (1996) and Ungaro (1997).

CHAPTER TWELVE

Monumental Architecture of Non-Urban Cult Places in Roman Italy

Tesse D. Stek

Introduction

Some of the most impressive sacred complexes in the Roman world arose outside urban areas. This chapter discusses the architecture of such cult places in relation to their role in ancient society. It will be clear that architectural principles and models are not hindered by city walls and many elements can be found equally in urban and non-urban cult places. The location outside the city, however, with its specific structural and socio-political conditions and requirements, stimulated the development of different solutions and could offer excellent opportunities for experiment. In this way, several non-urban cult places developed into highly innovative and imposing monuments that deviate from urban sacred architecture in important respects. This development is best seen in late republican Roman Italy, which will be the focus of this chapter.

1. From Sacred Natural Places to Monumentality

Prominent landmarks, such as hilltops and plateaus, and other features in the landscape, for example caves, forests, and water sources, had long been part of the sacred landscape of ancient Italy. The network of sacred places in the

A Companion to Roman Architecture, First Edition. Edited by Roger B. Ulrich and Caroline K. Quenemoen.

landscape reflected the cosmological view of its inhabitants, helping to structure or to emphasize imagined or natural boundaries and transitory zones. Often, these sacred places were not marked out by elaborate and durable architectural forms and are only recognizable, especially from the Iron age to the mid-republican period, by the presence of portable votive material, which regularly has been retrieved in caves, lakes, springs, or appositely made pits (Edlund-Berry 1987; Bouma 1996; Comella and Mele 2005). In the ancient conception the demarcation of sacred space did not require permanent architectural structures or embellishment. A space declared sacred by man forms the essence of ancient cult sites. A frequently encountered definition of early Roman sanctuaries is *lucus*, which literally means "clearing" or "open space" in a wood, and sacred space in general could be indicated visually by trees, marking stones, or *cippi* (De Cazanove and Scheid 1993 with bibliography). Altars, which could also be temporary, were set up inside these sacred areas for the sacrifice. Proper cult buildings and other stable structures do not necessarily form part of a sanctuary. The built-up aspect, which many non-urban sanctuaries assume from the archaic and, especially, republican periods onwards, responds therefore to a large extent to other, not necessarily strictly religious, functions and dimensions that these sanctuaries had for their communities, as well as to broader socio-economic and architectural developments. After briefly discussing these socio-economic and architectural developments and the relationship between cult place and community, it will be illustrated how these factors interacted in the creation of some exemplary monumental sacred complexes in Latium, Samnium, and Lucania.

2. Monumental Building between Global and Local

Construction of major non-urban cult complexes in Italy is concentrated in the last three centuries BCE, with a significant emphasis on the latter decades of the second and the first half of the first century BCE (although this varies regionally, see below). These complexes can be called monumental in that substantial resources were employed to achieve high visibility as well as permanence (being largely built in stone) with respect to other elements in the landscape (e.g., Trigger 1990; Moore 1996: Chapter 3). The relatively sudden and widespread monumentalizing trend was made possible by a combination of factors. An obvious prerequisite – yet not a "cause" – is wealth (see below). Some of the elites of Roman Italy were able to profit considerably from the opportunities offered by the Roman policies of expansion. In particular, their participation in the eastern Mediterranean markets (best attested at Delos) has been highlighted as contributing to the accumulation of wealth that could then be spent on large building projects. It is also clear that the

extension of military, political, and commercial activities of Romans and Italians, especially in the eastern Mediterranean, increased familiarity with Hellenistic architecture, as part of a general intensification of cultural interaction in this period. Notably, the cult complexes at Cos (Asclepieion), Kamiros, Lindos, and Pergamon will have provided inspiration, especially in their scenographical design over several levels (e.g., Coarelli 1987; Caliò 2003). The same probably goes for the presence of theaters in sanctuaries, which were common in the Hellenistic world. This does not mean that this influence should be thought of exclusively as a one-way process, for in the light of the chronology of some complexes, it can be argued that some eastern sanctuaries may indeed have been influenced by the Roman/Latial enterprises, such as the sanctuary of the Syrian goddess at Delos (Caliò 2003: 57–58). Moreover, the vigor and originality of the cult complexes that arose in Roman Italy in their own right are very clear, and the developments here can certainly not be seen as a mere reflection of what happened further east.

This uniqueness is not only evident from the specific Italic and Roman layouts of cult complexes, dictated by ritual or the wish to adhere to (perceived) traditions, that is, in the axial symmetry and frontality of most designs or in the peculiar layout of some Italic complexes (see below). It is also apparent in the adoption of particular building techniques and materials and the specific opportunities that these offered in terms of scale and the expression of local difference. In addition to the typical central-Italian polygonal walling and simple dry laid masonry, which remain popular techniques well into the late republican period, there is the revolutionary Roman construction method of *opus caementicium*, faced typically with *opus incertum*, which would permanently alter the aspect of Roman architecture (see Chapter 9). It was an outstanding technique for building large structures efficiently, even on difficult terrain. Yet, importantly, neither wealth nor the availability of a new repertoire of architectural forms and techniques automatically leads to the construction of monumental sanctuaries; these factors do not provide an explanation for the phenomenon in itself but should be considered as necessary conditions (Stek 2009: 44–52). We are confronted with particular choices in specific historical situations to invest vast amounts of resources (including human labor) in cult complexes, most of which had functioned for long periods with little architectural presence. The epigraphical evidence shows that these choices were made at a local level by the leading representatives of nearby Italic communities. Not surprisingly in enterprises of such scale and scope, these decisions can mostly be related to the desire of the involved urban or rural communities and their leading figures to position themselves socially, politically, and culturally within the rapidly changing world. The quick adoption, when deemed convenient, of similar models and techniques reveals that communities were very aware of what was happening at their direct neighbors

as well as in the wider Mediterranean, but this did not preclude conscious choices to do things differently – rather on the contrary.

Local and regional trajectories of cultural developments and contacts, both in the long and short term, are therefore important factors. These processes led to the creation of unique and innovative architectural complexes, in which both new (or "foreign") and (perceived) traditional elements and techniques were combined and adapted, which could acquire new meanings and functions in different contexts. The entanglement goes often so far that it becomes virtually meaningless to attempt isolating the Eastern-Hellenistic or, in turn, the Italic/Roman legacy in such complexes, once a dominant debate (a major turning point is Zanker 1976). A perspective which sees them as self-conscious products of specific historical situations seems more promising to understand the active combination of different architectural schemes and "languages" (Dench 2005; Wallace-Hadrill 2008b). It is therefore important to appreciate the different significances non-urban cult places could assume for their related communities.

3. The Relationship between Cult Place and Community

Many temples outside urban areas are still directly related to the urban community. Most evident are the so-called extramural or suburban sanctuaries, that is, those located directly outside the urban walls (Colonna 1985; Edlund-Berry 1987). Vitruvius states that some public cult places were in principle located outside the *pomerium* or the city walls by religious rule, such as Vulcanus, Mars, and Ceres (Vitr. *De Arch.* 1.7.1–2), and we must keep in mind that one of Rome's main temple building areas of the republican period, the Campus Martius, lies outside the walls. A direct relation with the urban community is particularly clear in sanctuaries outside the city where Roman priests performed rituals, in the act emphasizing the sacral-juridical unity of the Roman people. One such cult place is that of Dea Dia at the fifth mile of the Via Campana. This cult place is exceptionally well documented by the epigraphical records of the Arval Brothers who performed their cults there (Scheid 1990). The sanctuary was a *lucus* proper (e.g., *CIL* 6.2023a), and excavations have revealed the later imperial phases. As it appeared in the Severan period, the sanctuary was constructed over two or three terraces, on the highest of which a sacred grove was placed that contained the cult building (*aedes*) of Dea Dia but also temporary altars dedicated to associated deities. One level lower, a *Caesareum* with cult statues of the divine emperors was installed. On the lowest level a

U-shaped *porticus*, the rounded southern part of which presented several closed spaces (*papiliones*), and a *balneum*, presumably for the use of the priests, closed the sacred complex (Broise and Scheid 1987; Scheid and Broise 1989; Broise and Scheid 1993).

In addition to the evidence of Rome, the huge monumental cult complexes that were built in the latter half of the second and first half of the first century in Latium and other areas of Tyrrhenian Italy were mostly directly related to towns in their vicinity. These cult places, such as the suburban sanctuary of Hercules Victor near Tibur (Tivoli, see below), or another one near Tusculum, occupy dominant positions in the landscape. The direct topographical relationship to their respective towns and their access roads demonstrate, however, that we should not consider them as any less connected to their urban communities than, for instance, the architecturally similar urban cult places of Praeneste (Palestrina) and Gabii. In some cases, inscriptions explicitly state the involvement of the civic authorities in the construction and maintenance of the cult places (e.g., *CIL* 1^2.1492 for *quattorviri* involved in the construction of the Temple of Hercules Victor at Tibur, or the local senate and censors mentioned for the urban sanctuary of Praeneste; Degrassi 1969). The direct relation between civic community and sanctuary is, moreover, demonstrated by the connection of some of the building projects to contemporary and more extensive projects of urban renewal, such as in Tibur or in Praeneste.

A strikingly different situation is encountered in the internal regions of Italy and in some of the provinces, in areas that were less or non-urbanized. Temples could already fulfill a variety of functions in urban contexts, amongst other things as meeting place for the senate, as bank, museum, or archive (Stambaugh 1978). In non-urbanized areas where other specialized public spaces and buildings were largely absent, sanctuaries could take over even more of such functions and become a chief gathering place for the rural community. In the Greek world and in other urbanized areas, non-urban sanctuaries sometimes functioned as frontier markers of communities (de Polignac 1984; Leone 1998), but this model does not seem to work well in the rural areas. Here, the cult places were rather located at the heart of the rural community and functioned as poles of attraction for the wider population (Stek 2009). From the late republican period onwards, inscriptions explicitly attest to the direct relationship between rural communities and their cult places. Rural communities such as *vici* (villages) and *pagi* (territorial districts) managed their own cult places and there publicly displayed relevant decisions of the local authorities. A good example is the impressive three-*cellae* temple of Castel di Ieri in the Paelignian area in Abruzzo, which arose far from any urban settlement in the late second or first century BCE and was maintained by the local *pagus* (*AE* 2004: 489; Campanelli 2007). In the past, a strict hierarchy between the cult places relating to different levels of communal

organization such as *vici*, *pagi*, and other institutional entities has been supposed. In light of recent work on Roman rural administrative structures, it has now become clear that such a hierarchy is untenable, which, however, does not preclude different cult places from catering for groups of different scope (Stek 2009 with bibliography). It is evident that some of the major sanctuaries assumed an important symbolic political role, such as the Fanum Voltumnae for the *duodecim popoli Etruriae* (e.g., Livy 4.23), perhaps to be recognized in the sanctuary at Campo della Fiera near Orvieto or an analogous sanctuary at Pietrabbondante for the Samnites Pentri. As we will see below, such cult places could become appropriate places for the expression of specific local, regional, or even ethnic sentiments and ambitions, which influenced architectural choices. Economic functions of cult sites that are not directly related to urban centers are securely attested as well. Sanctuaries located along important routes or in border zones between communities could act as central marketplaces for the exchange of goods and information (e.g., Dion. Hal. *Ant. Rom.* 3.32.1 on Lucus Feroniae near Capena). Sanctuary sites with important centralizing socio-political and economic roles were usually not limited to a solitary temple building, but included several other structures, such as other cult buildings, porticoes, theaters, and shops, and may have eventually even grown out to "urban" centers with independent institutional status, such as Lucus Feroniae and Lucus Angitiae, the latter in the Central Apennines, respectively becoming a *colonia* and *municipium* in the first century BCE.

Individual socio-political requirements to cult places are thus an important factor in the ultimate realization of monumental cult complexes. Through discussion of the architecture of some particular examples in three different areas in Italy in the next sections, we will also see how local socio-political as well as ritual backgrounds and functionality could influence architectural choices.

4. Latium: The Sanctuary of Hercules Victor at Tibur

Most earlier Italic cult places focused on ritual and the sacred character of the natural terrain, perhaps modifying it slightly or demarcating it for ritual purposes. A very different relationship to landscape develops in the late republican period, when cult complexes are emphatically built to make an impression on the wider landscape, maximizing the scenic opportunities provided by the natural terrain and ruthlessly adapting it where it was deemed appropriate. A set of impressive sanctuaries erected in or near Latial towns in this period are often regarded as the apex of this development (notably those of Fregellae, Gabii, Terracina, Tusculum, Praeneste, Tibur, Nemi, and Lanuvium; Coarelli

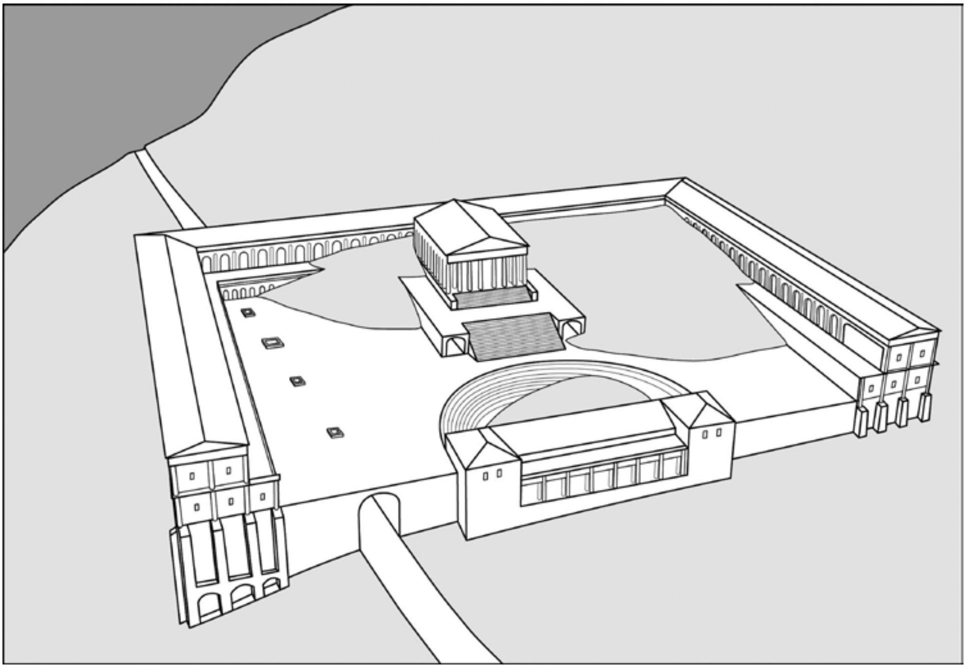


Figure 12.1 Reconstruction of the sanctuary of Hercules Victor near Tivoli. *Source*: Stek after Giuliani 2004: 28, fig. 8.

1987; Gros 1996a: 136–140). A prime example is the sanctuary dedicated to Hercules Victor, which arose just outside the urban walls of the ancient Latin city of Tibur. This sanctuary, consisting of a large platform with porticoes on three sides (*porticus triplex*) and a temple building and a semicircular stepped structure on its central axis (Figure 12.1), recalls in certain aspects the format applied earlier in the sanctuaries of Gabii and Praeneste. It is the largest known complex of this type, occupying an area of 152 × 119 m, including the porticoes. Especially in the substructures of the complex, it displays the virtuoso application of new building techniques in order to combine different functions of the site. The main building phase dates to ca. 80 BCE, which is confirmed by both building techniques and inscriptions (Coarelli 1987: 93–97; Giuliani 2004b with bibliography).

The sanctuary was placed on a short sloping plateau alongside the Via Tiburtina, which shortly afterwards reached the northern gate of the city. Perhaps it arose on the site of an ancient marketplace; it is in any case clear that the monumental complex deliberately controlled an important trade route leading from and into the mountains. In order to construct the platform, the area delimited by the steep descent to the Aniene valley and the Via Tiburtina had to be leveled. This was done by both significantly cutting back

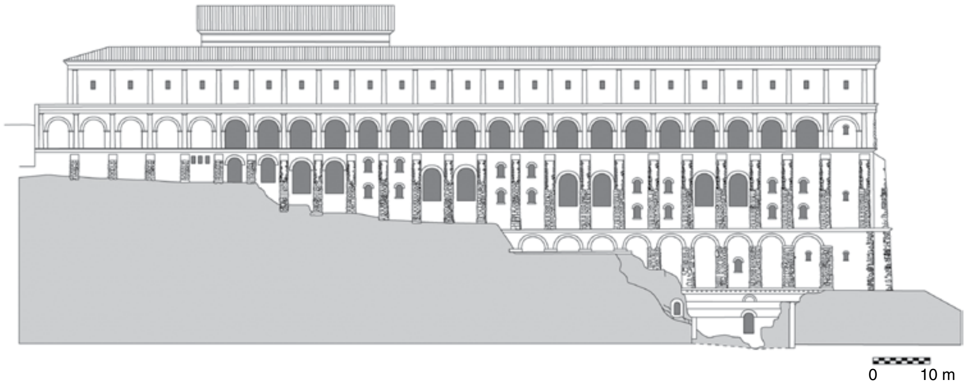


Figure 12.2 Reconstruction of the north elevation of the sanctuary of Hercules Victor near Tivoli. *Source*: Stek after Giuliani 2004: 33, fig. 13.

the bedrock on the hillside and constructing massive substructures on the steep side descending to the Aniene River (Figure 12.2).

Substructures in *opus caementicium*, one of the most typical and original innovations in Roman architecture, are fully employed in the late republican sanctuaries of especially Latium and neighboring areas. The sanctuary of Hercules Victor is a striking example of both the practical use and visual effect of this medium. This can be best appreciated on the highest side of the sanctuary at the northwest corner, where, including the porticoes of the superstructure, the spectator would see no less than five superimposed architectural layers. First was a base of *opus incertum*. This was succeeded by a level with arches separated by buttresses. The end faces of the buttresses, which had a rectangular plan and tapered towards the top, were made in *opus quadratum* from local travertine blocks, whereas their sides were made in *incertum*. The same technique was used in the next level, consisting of an array of robust buttresses alternating with windowed walls. These windows, loosely adapted to the slope in size and height, provided air and light for the chambers and the tunnel that ran through the substructures (see below). This buttressed level reaches the level of the actual sacred area, carrying the podium of the *aedes* and the two-storied porticoes. The next level, corresponding with the lowest portico surrounding the sacred area, consisted of a series of arches of trimmed travertine blocks alternated with semi-columns made in *opus incertum* (apart from the *abacus* in travertine and stuccoed *echinus*). The exterior aspect of the top level, corresponding with the second story of the portico surrounding the sacred area, is unknown.

One of the most striking accomplishments of the complex is that the substructures incorporated the pre-existing and major traffic artery of the Via Tiburtina. The road ran obliquely through the substructures of the sanctuary

for a distance of 140 m as a proper *via tecta* with a vaulted roof (Figure 12.1). In the substructures various compartments opened onto the road (southeast side), which were placed so that they served as a foundation for the *porticus* on the platform of the sacred area too. These compartments may have been used for storage or other commercial functions. On the opposite side of the road were additional spaces, illuminated by the windows in the facade of the substructures, which have also been related to commercial activities. Economic functions were thus fully integrated in the complex. In sum, the substructures enabled the architect to combine the practical need for the creation of a flat area for the upper sanctuary proper with an important mercantile and infrastructural function underneath. This placed the cult place literally in the major trade and communication route between Rome, Tibur, and the inland mountainous areas. The massive substructures surely not only served practical purposes, but also had a clear ideological dimension (Drerup 1966). The employment of *caementa* on this scale was only recently made possible by the different, less specialized organization of labor in the late republican period (see Chapter 9) and was effectively put to use to maximize the imposing, awesome effect of monumental complexes in the landscape. Similar solutions can be seen in other important temple complexes of the period, such as in the so-called "Tabularium" looking down on the Forum Romanum – also a platform for one or more temples – and the Temple of Magna Mater on the Palatine in Rome, as well as in Puteoli, Tusculum, and Praeneste (Tucci 2005; Pensabene and D'Alessio 2006; cf. D'Alessio 2011). Moreover, as Coarelli points out, in the particular case of the Tiburtine sanctuary, the architectural structure embedded a clear ideological hierarchy: the physical separation of the economic activities, at the base, and the cultic activities, literally on a higher level, reflects contemporary conceptions of the structure of society (1987: 88). The use of different levels to conceptually arrange the cosmic order can also be seen, for example, in the aforementioned sanctuary of Dea Dia (Scheid 1995).

The platform of the sanctuary proper was enclosed by porticoes at three sides (*porticus triplex*), leaving the southwest side open. The porticoes were built over two levels, with arches alternating with Doric semi-columns on the lower level and Ionic ones on the upper level. The second-story portico sat further back with respect to the lower level. More properly Italic-Roman concepts become clear from the actual temple building and its position: a 6.4-m-high platform with frontal stairs, as well as a 2.4-m-high podium on top of this, raised the *aedes* high above the sacred area to the level of the second-story portico. The *aedes* itself, measuring 36 × 25 m, was also frontally oriented with its *peripteros sine postico* plan. Although little remains presently, it was presumably octastyle, with 10 columns

at the sides. At the back wall of the cella was a niche for the cult statue, leaving two small chambers to each side of it. In the right-hand chamber, stairs lead into a cellar; this can perhaps be connected with the oracular function of the sanctuary or a votive deposit (Coarelli 1987: 90–91; Giuliani 2004: 64).

Morphologically distinctive for many Italic-Roman sanctuaries of this period, a theatrical *cavea* was constructed before the temple and in axis with it. The frequent architectural alignment of theater-like structures with temples has given rise to the term "theater-temple complexes" (Hanson 1959). The origin of the model and the function of the *cavea* in sanctuaries have stirred much debate, not in the least because it has been connected to the conception of the Theater of Pompey, which had a temple at the top of its *cavea* (Tosi 2003; Tagliamonte 2007; see Chapters 2 and 3). On the one hand, it is certain that theatrical performances could form part of the rituals and festivals held at cult places. This is a Mediterranean-wide phenomenon (Nielsen 2002). On the other, it has been suggested that the axial alignment of semicircular steps/theater and *aedes* seen in quite a few complexes in Roman Italy (besides Tibur, notably in Palestrina, perhaps Gabii, Teanum Sidicinum, Pietravairano, Pietrabbondante (see below), and Cagliari) reflects the close configuration of senate building (*curia*) and round assembly place (*comitium*) seen in some Latin colonies. Combined with the fact that some *caveae* were not suitable for seating, a political-ideological aspect, whether practical or symbolical, has sometimes been hypothesized (e.g., Coarelli and La Regina 1984: 254; Hülsemann 1987), but such a use remains hard to prove. Apart from possible theatrical and/or (symbolical) political functions or connotations, the semicircular steps/theater before temples provided an architecturally and aesthetically convenient way to make the transition between different levels of a sanctuary complex, leading the view to the temple building (Gullini 1991: 463). Functionally, the distinction should not be put too rigidly. Steps could also be used as a theater, with temporary stage buildings set up in front of them. In any case, recent excavations confirm that the *cavea* of the sanctuary of Hercules Victor functioned as a proper theater with *scaena* (Giuliani 2006b: 26–27; Ten 2006).

On the whole, the visual effect of this extensive building project in *caementa* is that of a massive volume on an eminent point in the landscape, with strong axial symmetry and eventually focused, through the *cavea* and the framing porticoes, on the temple, visibly elevated several levels above the substructures. The hierarchically structured incorporation of practical and cultic functions in one single complex thus formed a strong statement of the success of the Tiburtines responsible for the project and could become a symbol of the town's significance.

5. Samnium: The Sanctuaries of Pietrabbondante and S. Giovanni in Galdo, Colle Rimontato

Quite different socio-political conditions marked the internal areas of Samnium (more or less corresponding to modern Molise and part of Abruzzo). Rome's most feared enemies during the conquest of Italy, the Samnites, exhibited an organization of society that differed radically from the urban way of life typical of the Tyrrhenian coast. Living dispersedly over the territory in villages, farms, and occasional hill-forts, sanctuaries formed focal places in religious as well as socio-political respects (Coarelli and La Regina 1984; Dench 1995; Tagliamonte 1997; Bispham 2007; Stek 2009). Such cult places appear in the archaeological record from the fourth century onwards. It is only after the Samnite Wars (343–290 BCE), and notably in the later third and second centuries BCE, that these sanctuaries assume elaborate monumental forms (our knowledge about the architecture of the earliest phases is, however, admittedly scarce, and further research into these phases may alter the picture).

The foremost Samnite sanctuary arises at Pietrabbondante, on a hillside at a height of 1,000 masl (Strazzulla 1971; Coarelli and La Regina 1984: 230–257). An Ionic temple was erected in the latter half of the third century BCE, and in the second quarter of the second century BCE, a smaller temple, dubbed Temple A, was built. Several other structures stood in the sanctuary area, and recent excavations by La Regina have unearthed a large atrium house-type building interpreted as a *domus publica* as well as a portico. The most prominent architectural complex in the sanctuary is, however, the so-called Temple B, aligned with a theater in front of it (Figure 12.3). Both temple and theater were constructed around the turn of the second to the first century BCE on the site of the Ionic sanctuary, which had been destroyed earlier. The complex partly respects the layout of the previous sanctuary and extends over an area of about 55 × 90 m. Local limestone was used. The theater, which occupies about two thirds of this area, is, contrary to the Tiburtine one, inspired by Magna-Grecian models diffused also in Campania. The theaters of Sarno and Pompeii exhibit strikingly similar features (Lauter 1976; Sear 2006: 153 with bibliography). The lower part of the *cavea* consists of three rows of elegant stone seats, each with a continuous curved back, terminating at the ends in winged griffin paws, whereas kneeling *telamones* finish the side walls of the higher part of the theater. These refined details are comfortably juxtaposed with smooth polygonal masonry made of huge irregular limestone blocks for the facing wall of the theater. Polygonal masonry is typical for many central Italian structures in the republican period and was not only adopted for practical exigencies of construction, but often seems to assume an added ideological value, perhaps becoming something of an "archaizing" or traditionalizing symbol for central Italian towns and

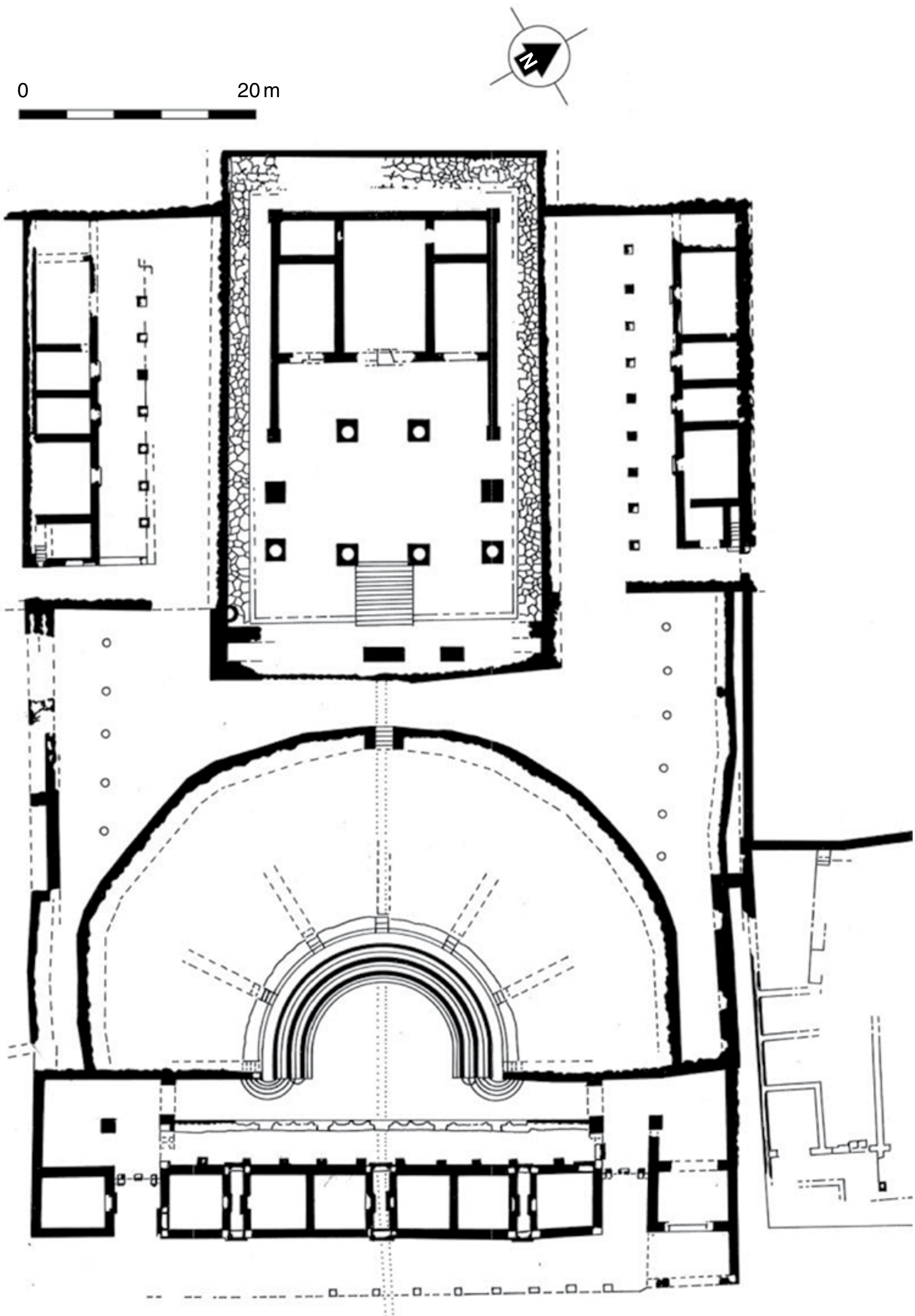


Figure 12.3 Plan of the sanctuary of Pietrabbondante. *Source*: Stek after *Sannio* 1980: 166, fig. 32.

sanctuaries in the late republican period (Cifarelli 2003: 88–96; Wallace-Hadrill 2008b: 121–123; see Chapter 1). The suggestion is especially compelling here because the polygonal walls seem to function primarily as a cover, whereas the static support is provided by internal walling of a different type (Cifarelli 2003: 88–96).

Behind the theater, and 5.50 m higher than the level of the orchestra, is a space reserved for two lateral porticoes and the temple building proper in the center. The retaining wall behind these structures is also of polygonal masonry. The temple sits on a high (3.6-m) podium (36 × 23 m) with frontal stairs. The podium is made in limestone blocks and slabs, which cover an intricate system of foundation walls, holding the rubble filling, on the inside. It has articulated profiles at the base and top, with a good parallel in the Fondo Patturelli sanctuary in Capua. The *aedes* presents a deep tetrastyle front porch and three *cellae*, and, combined with the high podium, is clearly reminiscent of the Etrusco-Italic or Capitoline-temple type. Altars stood in front of the podium in alignment with the *cellae*. The temple-theater complex thus shows many elements that are familiar in other Hellenistic, Roman, and Latial architecture; yet the entire conception and significance of the sanctuary relate to contemporary notions of Samnite identity and pride. On this very spot, already in the archaic period, weapons (predominantly foreign ones) were deposited, documenting the military-political overtones of the cult place already by then. La Regina's suggestion that the original enclosure of the sanctuary corresponds with the dimensions of the area demarcated for a Samnite military oath as described in Livy (200 × 200 feet; 10.38) may further support the martial connotation of the cult place (but see De Cazanove 2008). This military connotation is bolstered by an Oscan dedication to Victoria (Poccetti 1979: no. 16). The most striking inscription, however, is a second-century-BCE dedication (Vetter 1953: no. 149), which mentions the ethnic *safinim*, apparently defining the sanctuary as that of the Samnites as an ethnic group. With an eye to this particular historical significance of the sanctuary, it seems legitimate to read the Temple B-theater complex as a statement of Samnite pride in the period shortly before the last outbreak of Samnite-Roman hostilities, the Social War (91–89 BCE). The fact that Hellenistic, Roman, or Latial elements and models were adopted and adapted does not diminish in any way the distinctiveness of the sanctuary and its potential for expressing a conscious "Samnite" socio-political message. It is certainly no coincidence that in the same period as the construction of Temple B, around 100 BCE, smaller cult places in Samnite territory were erected that reflected the mother sanctuary at Pietrabbondante (e.g., Coarelli and La Regina 1984: 298; Capini 1996).

The best example of such a small rural sanctuary has been excavated near S. Giovanni in Galdo on the Colle Rimontato (Di Niro 1980; Zaccardi 2007). The cult place arose in a relatively densely settled rural area in the late fourth or early third century BCE. Its monumental phase can be dated accurately to the very end of the second or the beginning of the first century BCE

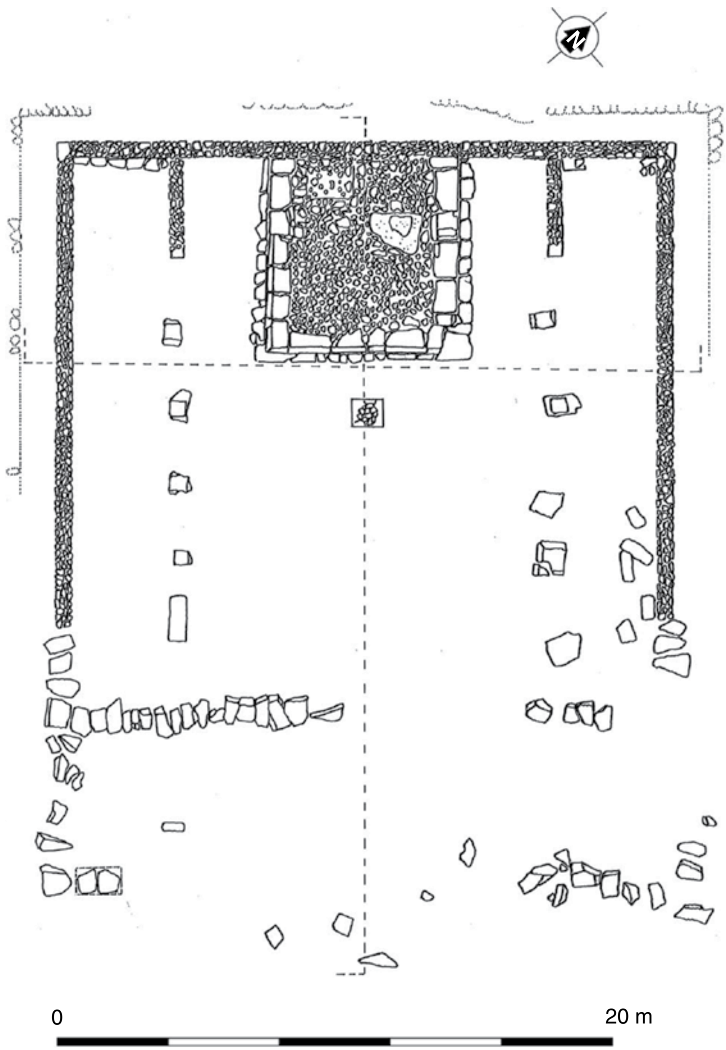


Figure 12.4 Plan of the sanctuary of S. Giovanni in Galdo, Colle Rimontato. *Source*: Stek after Zaccardi 2007: 63, pl. 1.

(Figure 12.4). The sanctuary is entirely built in local limestone. It consists of a square precinct (ca. 22 × 22 m), which is protected on three sides by a retaining wall. Two lateral porticoes, 4 m wide, were located at the southwest and northeast sides of the area. Columns supported the porticoes whereas the back part of the porticoes was closed off. A small cult building was placed against the center of the precinct's back wall. It stood on a high podium (7 × 7.50 × 1.54 m) composed of large blocks, with a profile seen in other Samnite sanctuaries, such as Pietrabbondante Temple A. The single square cella that stood on the podium was paved with a red *opus signinum* floor decorated with white mosaic *tesserae*.

The small building lacked stone stairs, which has led La Regina to suppose that it was not a real temple but rather a *thesaurus* (treasury) perhaps containing a statue (Coarelli and La Regina 1984: 296), though it is well possible that temporary stairs were used. The cult place presumably catered mainly for the local rural community of villagers and farmers. Square sanctuaries are frequent in the Italic areas, not only in Samnium (see below). Yet this layout, with lateral porticoes and the central cult building in a rectangular precinct, seems indeed to reproduce in reduced scale the sanctuary of Pietrabbondante and taps into the language of self-affirmation of the Samnites in this period.

6. Lucania: The Sanctuaries of Serra Lustrante d'Armento and Rossano di Vaglio

In Lucania, today Basilicata in southern Italy, non-urban sanctuaries were prominent too. But the particular socio-cultural background and historical trajectory of Lucania conditioned an outcome that differs markedly from that in Latium or Samnium. Settlement in the undulating landscape of Lucania was characterized by large hill-forts on the flat hilltops as well as villages and farms (e.g., Salvatore 1990; Torelli and Lachenal 1992; Horsnaes 2002; Isayev 2007). A widespread process of sanctuary building is witnessed in the second half of the fourth century BCE. Although once it was assumed that Lucanian cult places dwindled after Pyrrhus (280s BCE), it is now clear that, on the contrary, many cult places continued to flourish and were rebuilt in monumentalized form precisely in the third and second centuries BCE.

The architecture of these Lucanian cult places deviates markedly from the sacred architecture prevailing in the neighboring areas. Most notable is the absence of conventional temple buildings in the classical sense. Sanctuaries often include small shrines, surrounded by courtyards in settlement contexts (Fracchia and Gualtieri 1989) and sometimes by other rectangular structures in the rural areas (Greco 1996; overviews in Horsnaes 2002: 99–105; Isayev 2007: 33–41). Rather than conform to a regular design, the diverse assemblages of different small cult buildings, porticoes, altars, channels, pits, and so on respond to a set of distinctive ritual requirements. One of these requirements can be recognized in communal dining. Banquet halls are a regular feature of these cult places, along with hearths and large quantities of cooking pottery. The role of water is even more distinctive. Lucanian rural sanctuaries are always located near a spring. This is a rather common characteristic of sanctuaries in the ancient world, but in Lucania exceptional attention is paid to the conducting of the water through the sanctuaries by way of elaborate channel systems and basins. Eloquent is the presence of ceremonial pathways in several sanctuaries, usually connecting the small cult structures with the cult

statue(s) and altar with a water source such as a basin, fountain, or cistern. The sanctuary of Serra Lustrante d'Armento may serve as an example (Russo Tagliente 1995). In its first phase of the late fourth century BCE, the sanctuary consisted of an open area with a small cult building (3 × 2.50 m), presumably with an altar in front of it (Figure 12.5). The small cult building was connected through a ceremonial path made of tiles with a cistern (4.50 m deep), a water basin, and two rooms for dining and cooking. In the second phase, dated to the first half of the third century BCE, the sanctuary was enlarged significantly and reorganized over two terraces. The terraces were connected by stairs, which were in a later phase replaced by a "*via sacra*" made of pebbles. On the upper terrace, more rooms were added, built in a particular masonry technique alternating regular stone blocks with a mix of tiles, pebbles, and stones. On the lower terrace, the small cult building was rebuilt, and the ceremonial path was adjusted accordingly. This reorganization of the

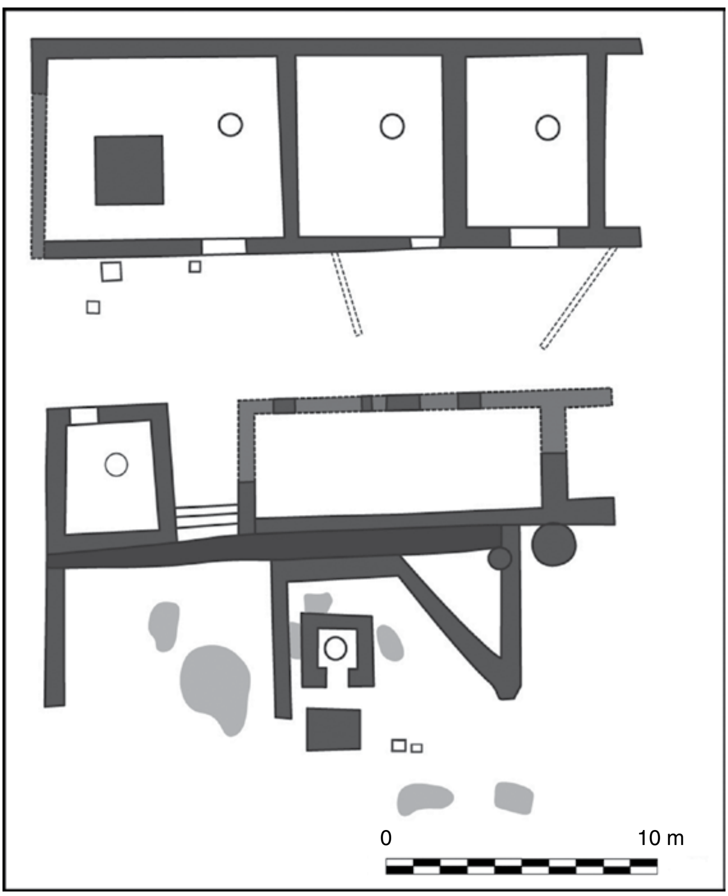


Figure 12.5 Plan of the sanctuary of Serra Lustrante d'Armento. *Source*: Stek after Russo Tagliente 1995: 43, fig. 41.

sanctuary over terraces has usually been attributed to Greek or Hellenistic influences, as an early example of the development later seen in central Italy (Russo Tagliente 1995: 59–60). Yet, the main elements of the traditional cult place, the banquet hall, the cistern, and the small cult building with altar, connected by a ceremonial parcours, remained essentially there.

The most prominent non-urban cult place in Lucania is the sanctuary of the goddess Mefitis at Rossano di Vaglio, which, if perhaps initially related to the nearby settlement of Serra di Vaglio, developed into a major cult center and continued in use long after the settlement had faded away. The first phase dates back to the second half of the fourth century BCE (Adamesteanu and Dilthey 1992). The full-blown monumental phase can probably be dated to the late third or early second century BCE, and it is clear that the complex was enlarged several times and rebuilt over time, including a significant phase during the first century BCE (Nava and Cracolici 2005). The main excavated remains cover an area of ca. 70×40 m, but the sanctuary extended beyond that over different terraces (Figure 12.6). The excavated part of the sanctuary basically consists of a large area measuring 37×21 m, which was paved with slabs of hard local stone. This court could be accessed from the northwest side through a large (6 m) entrance, which was framed by two semicircular fountains. The water pouring from these fountains flowed across the paved area through a canal. The court is otherwise surrounded by a series of elongated halls and porticoes. The northern room was decorated on the inside with semi-columns, whereas the southern portico was supported by six columns. This portico also had an entrance to the south, and a "*via sacra*" starting here has recently been recognized (De Paola and Sartoris 2001). The rooms adjacent to the court have yielded remains of fine Hellenistic statues in bronze and marble and many votives. One of these rooms may have housed the cult statue of the main deity of the sanctuary, Mefitis, who was venerated alongside other related deities. Most prominent, however, is the large (27.25×4.50 m) double altar in the middle of the paved area. The emphasis on specific ritual requirements seen in Armento transpires here again, and morphologically the sanctuary, with its enclosed paved area, recalls the so-called courtyard shrines (Fracchia and Gualtieri 1989). In contrast to most Lucanian settlement and cult sites, the sanctuary flourished in the last centuries BCE and was frequented well into the imperial period. The abundant Oscan and Latin inscriptions found in the sanctuary, mentioning officials of various ranks, as well as the lavish votives, support the idea that the sanctuary grew to be a major socio-political focus in a time when Lucanian society was rapidly changing, not in the last place as a result of the incorporation in the Roman world. Also in this case, the monumentalization and embellishment of the cult place and its associated material culture according to contemporaneous fashion did not prevent it from retaining a unique nature.

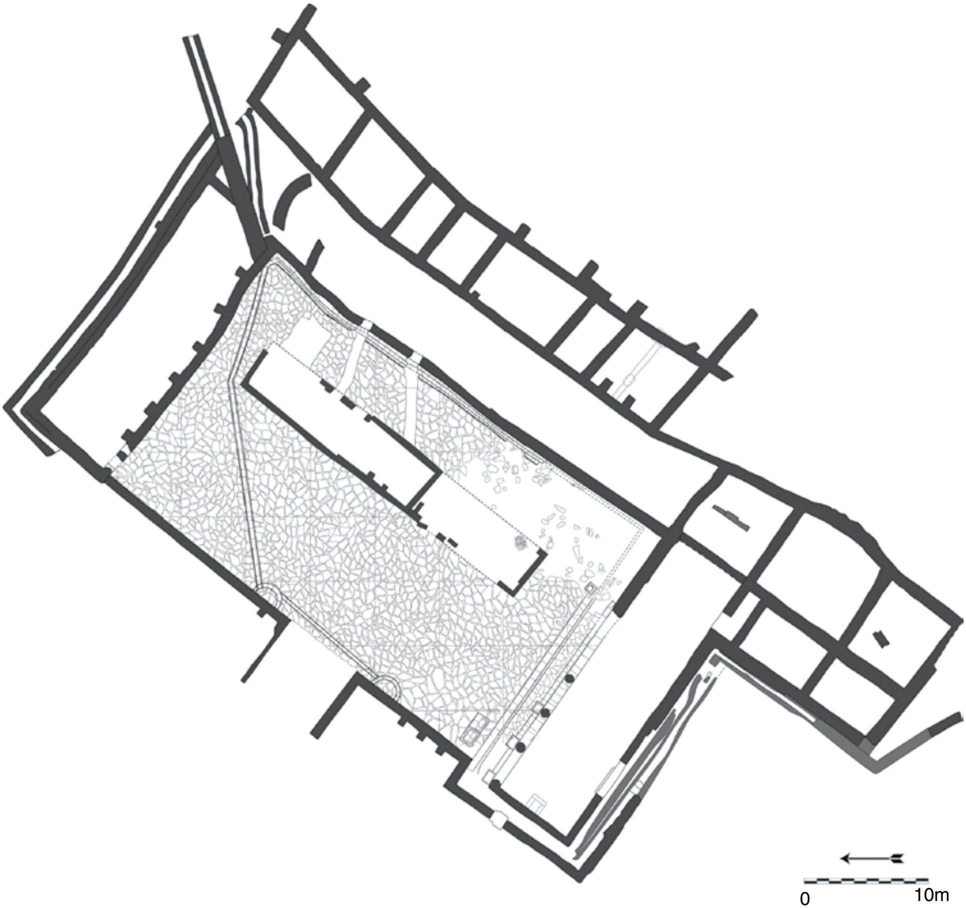


Figure 12.6 Plan of the sanctuary of Rossano di Vaglio. *Source*: Stek after Adamesteanu and Dilthey 1992: 18, fig. 3.

7. Conclusion

The act of monumentalizing non-urban cult places, even if on different scales, is in itself clearly part of a broader development in the late republican period. The dramatic placement and visibility in the landscape of the major cult places is a common feature, and this forms an important step in the development of Roman architecture. The ascending hierarchy of space over different terraces or levels can be observed in virtually all larger complexes and is a characteristic which could be developed par excellence outside the urban space by taking advantage of the natural landscape. In the specific sanctuary designs, the accommodation of diverse functions – both practical and ideological – of non-urban cult places in society is manifest. But although particular local or

regional choices are evident, it is important not to equate this distinctiveness with the immutability of local traditions. The choice to express local difference rather related to precise contemporary needs and does not alter the fact that the process of monumental building brought essential changes to the aspect of non-urban cult places, and thereby their role in society. The monumental phenomenon was in reality part of fundamental transformations in ancient society and can indeed in part be interpreted as a reaction to it: as the symbolic enhancement of the community and the precarious status of its leading individuals. Anthropological examples suggest that, above all, religion has a major role to play in the "symbolic construction of community" in ethnic or cultural terms in periods of loss of social cohesion and the concomitant challenging of existing power structures (e.g., Cohen 1985). A similar correlation has been found with monumental architecture (Abrams 1989; Trigger 1990), and such a perspective is not at odds with the eventful socio-economic and political context which is late republican Italy.

But these transformations in society and the related significance of cult places did not stop after the major, monumental makeovers of the latter. The cult places and the mark on the landscape they made should also be viewed in the longer term. It has often been stressed that non-urban cult places dwindled as a result of the growing emphasis on urban centers and their cult places at the end of the republican and in the imperial periods, especially those which were not able to maintain a connection to an urban center. It is certainly true that monumental building in non-urban sanctuaries shows clear peaks in determined periods, as for instance in the late second and early first centuries BCE. Recent and ongoing research tends to show, however, that these common dates cannot be over-generalized and are moreover seldom end dates in terms of continued use. Many cult places continued to be frequented, had significant imperial phases, or even had the direct attention of the Roman authorities or emperor (Scheid 2006). Continued attraction of these sacred places could manifest itself in many ways in the imperial period: Augustus held court in the sanctuary of Hercules Victor (Suet. *Aug.* 2.72.2); the cult of Rossano's Mefitis was adopted in the new Roman town of Potentia (*CIL* 10.131–133); and the *gens Socellia* chose to erect their tomb near the old sanctuary of Pietrabbondante.

GUIDE TO FURTHER READING

Research on non-urban cult places has been prolific in recent years, and new sanctuaries continue to be discovered regularly, especially in the mountainous and Adriatic areas of Italy. To answer the demand for a systematic overview of cult places in Italy, a corpus on ancient Italian cult places called *Fana, templa, delubra* is currently in

preparation, the first volume of which, on part of Latium, has recently appeared (Gatti and Picuti 2008). For definitions and terminology of (non-urban) cult places in Italy, see especially the contributions in *Cahiers du Centre G. Glotz* 8 (1997); the *Thesaurus cultus et rituum antiquorum* (*ThesCRA*) (J. Paul Getty Museum 2004–2012); De Cazanove and Scheid (1993; 2003); and Colonna (1985), and Edlund-Berry (1987) on Etruria and Magna Graecia. On monumentalization see the special issue on "Monuments and the Monumental" in *World Archaeology* edited by Bradley (1990). Specific studies on the architecture of non-urban cult places in Italy are not numerous and usually treat specific sites or regions. For the (both urban and extra-urban) Latial sanctuaries Coarelli (1987) remains fundamental, along with the excavation reports of specific sites; recent research is regularly presented in the *Lazio e Sabina* conference proceedings. For the Central Apennines and Samnium, see Coarelli and La Regina (1984); Campanelli and Faustoferri (1997) and various contributions in *Sanniti* (2000); Capini and Di Niro (1991); Strazzulla (2006) on the terracotta decoration; and Stek (2009) on the relationship between settlement organization and rural cult places. For Lucania see, apart from the already mentioned works on particular sanctuaries, for example, Masseria (2000); the overviews in Horsnaes (2002); Isayev 2007 (with site catalog); and Nava and Osanna (2005).

CHAPTER THIRTEEN

Fora

James F.D. Frakes

Introduction

> The forum represents in effect the place where all the signs of municipal dignity are concentrated and around which successive generations … acquire or develop a self-consciousness of being part of a community. The concentration of religious and municipal buildings, as well as the commemorative monuments and honorific inscriptions in the open area, make the forum, in most western cities, a veritable *monumentum* in and of itself, a *lieu de mémoire* as we say today. (Gros 1996a: 207, author translation)

The forum served as the heart of a Roman city. That this is obviously so should not prevent us from asking *how*, in the experience of Romans in the Latin West, it was so. The forum was the heart of the city in an *administrative* sense, of course, as a place where the institutions of civic government were clustered, as well as in a *legal* sense, as a place where public business, including law cases, was conducted. It also became the heart, typically, in terms of *spatial layout*, as the rectilinear culmination and seeming origin of the urban grid – as the center of an area of urban development to which all roads should lead. It was the heart, too, in terms of civic *religion*, as a stage for the rhythmic annual rituals that were thought to secure the city's good relations to the gods. Often perhaps, the forum was considered the heart in an *economic* sense, for even if markets or shops were not uniformly present in all forum spaces, at least the administrative authority that regulated their activities was there.

A Companion to Roman Architecture, First Edition. Edited by Roger B. Ulrich and Caroline K. Quenemoen.

Finally, on some level, each city's forum was a reference to the city of Rome itself, evoking with symbols and through ideological structures that heart of hearts, the *umbilicus* where *imperium* came continually into being.

To inquire about any of these aspects of the forum space in a Roman city is to confront a set of overlapping ideas about centrality, authority, persuasiveness, and civic participation (see Chapter 20). The forum, as a result, although shaped as a physical space by its surrounding structures, was as much a social phenomenon as it was an architectural one. It was architecture's task to manifest and, in some ways, to stabilize these abstractions, and different building types came not only to accommodate various practical functions, but also to give form to the larger framework of ideas that gave those functions meaning: basilicas, curias, podium temples, shops, and porticoes most commonly – with public halls, fountains, treasuries, prisons, and secondary temples sometimes added to the list. The collective idea of the forum found expression in the *proximity* of some or all of these buildings, and although their spatial relations were varied, several patterns emerged over time – the most common being a rectilinear plaza sometimes subdivided into two or three joined spaces and axially focused on a temple. To say that the forum served as the heart of the city leads one simultaneously to focus on that plaza, the open space that served as a symbolic container for these central ideals of civic life, as well as on the buildings that housed the civic functions and symbolically projected them into the forum space.

As a result of decades of study and of the ongoing excavations of *fora* from throughout the Empire, we are able to recognize easily the typology and evolution of the standard forum. The typological patterns are mainly to be found in the western Latin Empire, as so many urban plazas in the eastern provinces had already fully established themselves in the Classical and Hellenistic eras. Even though these eastern agoras do come, by the first century CE, to house and to embody a similar set of civic ideas, the spatial and urban patterns of western *fora* are thought to have eastern counterparts mainly as imperial cult sanctuaries, physically separate from the agora proper, and without many of the legal and administrative functions a proper forum would house. For that matter, larger cities throughout the Empire had more than one open plaza, and often these plazas now go by the name of forum. In this chapter I will concern myself only with western patterns and examples, and for spaces with the overlapping types of centrality presented in the opening paragraph, following all of the main existing studies on the Roman forum spaces (Ward-Perkins 1970; Gros 1996a; and Paulus 2000 among them). Before setting out what we know of the physical layout of forum spaces, and looking more closely at specific examples, we will turn to the main surviving set of architectural and urban opinions on how a forum space should be conceived, that is, the architectural treatise of Vitruvius.

1. The Forum as Considered by Vitruvius

In the much-studied *De Architectura*, dating from the architecturally exciting heyday of the Augustan regime, Vitruvius twice writes directly of the forum space: first, briefly, in his opening book at 1.7.1, and later, more extensively, in Book 5. Centuries of Vitruvian interpreters have sought in his principles an explanation for actual urban planning and architectural design decisions as they survive in physical remains (see Chapter 22). As Pierre Gros has put it (1996a: 207), the axioms of Vitruvius suffer many exceptions. Even if we sometimes do find a forum that obeys his recommendation, for example, of a proportional layout of 2:3, it seems as advisable nowadays to read Vitruvius for the ideas that animated him, ideas, we may reasonably suppose, that had common currency among urban planners and architectural patrons in his day, as perhaps among people generally.

His first mention of the forum follows an explanation of the regular gridding of an ideal city's streets, and he suggests that the placement of the forum depends on appropriateness, either in the center of the land-locked town or near the harbor in a town on the sea. This linking of the forum space to the city grid resonates more than in terms of practical spatial arrangement; there is in the forum a pervasive idea of linear order. Not only does the forum space generally conform to an oblong rectangle that emphasizes axial relationships, but the generous use of colonnaded facades, integrated or not, also creates a three-dimensional spatial grid that responds to the two-dimensional street layout. Often this axiality is present even when a perfect grid could not be realized. Vitruvius presents the mathematical logic of the transcription from the two-dimensional by suggesting the most satisfying relationships between column height and the width of walkways, as well as the depth of the intercolumnar bays (*De Arch.* 5.1.5), but a pedestrian did not need to know the math in order to apprehend the spatial matrix. Movement through a forum portico created a sequential framework for all of the possible activities taking place there and encouraged a sense of being on display and of regarding the displays of others.

Seeing and being seen are the most important aspects of a forum space in the remainder of Vitruvius's text. Whether he discusses gladiatorial games (*De Arch.* 5.1.1), the viewing needs of which he claims caused greater widths between columns as compared to typical Greek practice, or the ease of access to otherwise unsightly mercantile activities (cf. *De Arch.* 5.1.2 and 5.1.5), or else the sightlines between the shrine of Augustus in his basilica at Fanum and the axially placed temple to Jupiter across the square (*De Arch.* 5.1.7), Vitruvius makes it clear that appropriate viewing was to be given priority by the thoughtful urban planner. Finally, Vitruvius (again at *De Arch.* 5.1.1) is

concerned that the overall effect of a forum plaza should be pleasing in that the whole complex should be built in a scale relative to the population so that there is both room to see everything and, simultaneously, enough there for everyone to see! Similarly, a forum's appended buildings should exist in comfortable scale to the whole (as in *De Arch.* 5.2.1 for the curia, prison, and treasury). The curia should be of enough size to suggest a city's dignity, but he gives pride of place more directly to the basilica, which, because he has built one, he hopes might be considered of the highest degree of elegance (*De Arch.* 5.1.6), and implicitly to the main temple. Whatever degree of use Vitruvius's text may be to architectural historians in terms of proportional relationships and design principles, the importance of the basilica and temple determining in some way the overall spatial effect of the plaza can be easily recognized in most excavated western Roman *fora*.

2. The Development of the Western Forum

The early development of the forum space (leaving the Forum Romanum aside as a rather more complex and unique case) is known mainly from the stratigraphic analysis of long-enduring forum complexes from pre-existing cities, such as Alba Fucens (304 BCE), Minturnae (296 BCE), or Pompeii (complexly, from the fourth century to 80 BCE), or else from the survival of republican colonial foundations, such as Cosa and Paestum (both 273 BCE). Even though each one of these differs from the others (for example, the forum at Cosa is not central to the city grid because the topography of its rugged outcrop suggested a better location for the open plaza slightly to the southeast), cumulatively they demonstrate a growing consistency for the ideas that opened this chapter: the preference for oblong rectangular plazas, the clustering of the appropriate buildings, and the relationship of the plaza to the expanding urban street network, whether a complete or a piecemeal grid system (see Chapter 21). William MacDonald divides the common spatial schemes into four types: (1) long and narrow: Assisi, Pompeii, Tarragona; (2) Vitruvian: Conimbriga, Timgad, Severan forum at Lepcis Magna; (3) nearly square: Paris, Thuburbo Maius; and (4) actually square: Doclea, Nicopolis at Istrum (MacDonald 1986: 52).

The typological variation to be found in the layout of republican Italian *fora* has led to much discussion, mainly about whether or not the differences reflect diverse origins. For example, the overall plaza layout may be a reaction to correlative ideas about the proper form of the basilica. The basilica's origins may themselves be dual, in that some basilicas take up the form of the Greek stoa (the open colonnaded building) while others bear a greater resemblance to the Italic atrium house (see Chapter 18). From the "stoa"

basilica came a forum-basilica with emphasized length and monumental decoration (e.g., Pompeii), while from the "atrium" basilica came a more modest forum-basilica with an axial entrance on the long side and a length closer in measure to its depth (e.g., Cosa) (Cavalieri 2002). On the other hand, the growing familiarity of Italian urban elites with Hellenistic sanctuaries, both in southern Italy and throughout the larger Mediterranean, may have caused a reassessment of how Italic civic institutions should be presented spatially and architecturally, even if the use of sanctuary plazas tended to demand smaller spaces than were called for by the civic centers of Roman towns. James Russell reached the sensible conclusions that the "wide and imaginative range of mutations" (1968: 336) to be observed among republican *fora* was governed very loosely by increasingly collective notions of symmetry, axiality, and frontality.

These three organizing principles continued to mark the Roman forum in the western Empire, as in the waning years of the Republic it began to be exported and/or adopted in communities outside of Italy. The evolution of the so-called "tripartite forum" became typical, especially for the Gallic and Spanish provinces. The three elements included in the designation are a main temple, the civic basilica, and the rectangular forum plaza itself (Gros 1996a: 220). The connections among these three parts vary. For example, the basilica may be placed either alongside the length of the forum plaza (e.g., Ruscino) or closing one of the shorter ends (e.g., Augst). The temple, usually with axial emphasis, might stand attached to the closing porticoes at the other short end of the plaza, opposite the basilica (e.g., Bavay), or may float on its own podium at one of the long ends of the plaza (e.g., Feurs). The temple may be separated from other parts of the plaza by an intervening main street, either closed or opened to wheel traffic (e.g., Ostia), by a slight difference of level (e.g., Dougga), or even by a complete terrace separating it from a lower plaza (e.g., Nîmes). The porticoes might be built more or less at the level of the plaza, usually with unified orders for their entire length (except when a differentiating facade might distinguish the basilica), or else might be raised up on large cryptoporticus substructures. In Gaul, at least, the forum plaza was set within the larger grid of the city streets, as there were seldom pre-existing spaces to disrupt a linear city center (Frakes 2009: 49–56).

Similarly, in Spain we see the wholesale installation of basilica-plaza-temple complexes installed from the time of Augustus, even in places where Roman communities had been living without Italian-style forum complexes already for generations, as at Ampurias (Nünnerich-Asmus 1999; Gros 1996a: 221). At both Tarragona and Clunia the forum is linked to the formalization of the imperial cult, which inspired the installation of grand portico and basilica architecture (Nünnerich-Asmus 1994). *Fora* in Spain

also provided more ample space for mercantile activity than was common elsewhere. The cities of Britannia, on the other hand, often built large basilica complexes on squarish forum plazas, while sometimes erecting temples to Jupiter or the imperial cult on a separate plaza, as at Saint Albans and Silchester (Frere 1975; Gros 1996a: 226). The forum pattern observable throughout Britannia has been linked to Roman military organization, particularly to the *principium* (headquarters) of an army camp (Gros and Torelli 2010: Chapter 5), and evidence for military use occurs in approximately one third of British towns (Burnham 1986). But doubts about programmatic military activity are raised by accumulating recent evidence of ritual deposits suggesting that town foundations followed an Italian model (Woodward and Woodward 2004) as well as in the recognition that the military camp itself already embodied ideas of Roman social order that correspond to forum spaces (Gros 1996a: 226).

The tension that arises from the intersection of local character with Empire-wide patterns can also be seen in North Africa, much of which, like the Greek East, had long hosted a developed urban society. While the expected juxtapositions of buildings and functions exist in North African *fora*, the plans present the greatest variation, including gridded "colonial" square plazas (e.g., Timgad), plazas that echo monumental spaces in Rome (e.g., Lepcis Magna and Sabratha), and dense clusters of buildings and open spaces (e.g., Cuicul and Dougga), with the axial tripartite model being relatively rare. Pierre Gros sees this overall inconsistency as the result of major second-century renovation projects that have frequently obscured what may have been a greater early imperial commonality (1996a: 227). The Antonine and Severan periods, a time of great prosperity in North Africa, saw the eclipsing of more traditional administrative forum types by open colonnaded sanctuaries, a trend with a typologically mutative effect (specifically, of eliminating or minimizing the basilica). But Gros surely goes too far when he characterizes the placement of administrative and temple buildings in North African *fora* as unregulated, incoherent, and disconcerting (1996a: 228). Such a characterization looks inwardly to an expected norm of tripartite axiality and ignores other evocative relationships. Long-term trends in North African urbanism show increased interest in high podium temples that have a commanding effect over, and a seeming architectural disjunction with, the plazas they dominate, as at the Temple of Minerva in Dougga (Eingartner 1992: 222–223). Another urban habit that may derive from the Punic period is a use of smaller, trapezoidal paved plazas – the continued effect of which may be seen at Lepcis Magna's old forum (Ward-Perkins 1981: 371) or in Mactar's "Punic forum." At the close of this chapter, a close description of the forum at Dougga will assess how a North African "jumble" may have been experienced (see also Chapter 5).

3. The Forum Romanum as Symbolic Space

Although there was no universal formula used to create ideological links between a city's forum and the Forum Romanum itself, certain architectural and decorative references offered this connection. These include from the Middle Republic in Italy, the dedication of the main forum temple as a Capitolium after Rome's Temple of Jupiter, Juno, and Minerva and/or the installation of a statue of Marsyas, which in Rome stood near the Rostra and was multiply symbolic of good governance (Veyne 1961; Wiseman 1988: 4). Similarly, during the reign of Augustus there was an Empire-wide proliferation of the Corinthian order and other visual codes of vegetal abundance that served the regime (Zanker 1988). The trapping of imperial cult also began at that point, and became increasingly present in forum spaces during subsequent dynasties. These took the form of dynastic statue groups (Rose 1997), of formalized priesthoods and their public honors (Fishwick 2002), and eventually of an Empire-wide monumental style of architecture (Thomas 2007b).

Capitolia began to spring up in forum complexes throughout republican Italy in the mid-second century BCE, and those that survive tend to replicate features such as a high podium with frontal stairway, an axial position at the end of large plaza, and some sort of interior division into three parts (either as *cellae*, niches, or statue bases). Even in cases where a positive identification by inscription is lacking (as at Cosa), it has become standard to see temples with these diagnostic features as Capitolia (Barton 1982). Furthermore, a community with a Capitolium usually enjoyed colonial status, although at times such temples were built by cities merely aspiring to higher Roman legal status, and, especially as the Empire went on, jurisdictional distinctions were not strictly maintained. Many Italian examples survive, both in previously established spaces and in the many new forum plazas in the developing north, with probable examples in Brescia, Florence, and Trieste (Todd 1985: 61). During the reign of Augustus, Capitolia were built throughout the western Empire, although regional preference played a part in their designations. In Gaul, a temple to the new imperial cult was favored over a traditional Capitolium, which otherwise occurred only in cities with roles to play in provincial administration (in Narbonne certainly, in Lyon probably). In Africa, on the other hand, and continuing throughout the first three centuries of the Empire, Capitolium temples abounded (Eingartner 1992). In most of the known Italian and provincial examples the temple is architecturally inextricable from the spatial matrix of the forum, in spite of the fact that the Roman Capitolium neither attaches directly to nor even properly faces onto the Forum Romanum. The consistency of central placement for Capitolia is a sign of its symbolic role – that is, that the provincial forum,

however much it might be an echo of that larger metropolis, could produce *order* more clearly than the imperial capital itself.

That residents of provincial cities were thinking in a focused way about imperial order is demonstrated by the widespread tendency to adopt the visual vocabulary of the Augustan regime and its successors. Without going into the complex historiography of the Corinthian capital, suffice it here to say that it became an architectural staple of Roman imperial architecture generally from the time of Augustus and saw overwhelming use in public plazas throughout the Empire (Frakes 2009: 111–120; see Chapters 2, 3, and 11). Worth considering here and in the section to follow is how the furnishing of forum spaces – the portraits of imperial and local figures, the floral scrolls, the mosaic floors, and the public sculpture – also reflected the notion of ordered abundance implied by the Corinthian capital. Paul Zanker demonstrates the dissemination of Augustan visual modes throughout the Empire by pointing both to the Maison Carrée in Nîmes, as a typical example of the central imperial podium temple type preferred by the regime (1988: 322), and to the Temple of Augustus and Roma at Pola (1988: 312–313), as an example of how the Ara Pacis served as a template for the adornment of public spaces.

The widespread use of colonnade architecture provided another fundamental sameness to forum spaces, which was experiential as well as visual. The sequence of columnar bays gave material form not only to the linear order of the city grid, as mentioned earlier, but to the ideological goals valued by the center: prosperity, civic pride as an expression of imperial power, and local self-placement in the larger Roman world. Yet the furnishing of these transitional spaces allowed scope for local narratives as well, in the shaping of landscape that might enrich an established topography such as the framing embrace of the ancient Gallic healing sanctuary of Glanum, or in the installation of new relationships, as in the descending forum porticoes of Vienne (France) that connected the hillside of le Pipet with the river harbor below. It was in these spaces that the portrait statues of local priests and benefactors began to stand in the vicinity of those of the imperial family (Fejfer 2008).

4. Forum Plazas in the West: Case Studies of Architectural Experience

In this final section are descriptions of three different forum spaces, each selected for the clarity of its topographical context, for the richness of its material remains, and for its ability to bring out the themes presented in the earlier sections of this chapter. In addition, they are selected here because I have been able to visit each of them and thus have a bodily sense of spatial and topographical relationships. Despite many similarities among the three, each study

allows for different emphasis. In Ostia we see how the constraints of an older urban model were eventually made, in the absence of a thriving donor class, to accommodate a grand rectilinear forum dominated on one end by Jupiter and on the other by the imperial cult. At Nîmes, in spite of its comparatively restricted excavated area, we encounter a provincial space, built from scratch as part of an expanding urban grid and decoratively linked to the Augustan regime's visual agenda. Finally, at the forum of Dougga, we navigate the "jumbled" spaces and read its accumulation in terms of local family rivalries and of skillful visual staging on the changing slope of the city's hillside.

Although building activity on the site of Ostia is attested from the fourth century BCE, and in its first phases was organized as a *castrum* (military camp), the city remained without a rectilinear forum space throughout the Republic. It had instead a nucleus of small temples (one of which may have been an early Capitolium) near the crossing of an old military camp's main *cardo* and *decumanus*. Early attention was first given, rather, to the large marketplace that came to serve as the *postscaenium* plaza of the theater, outside of the densely built settlement of Ostia proper – an attention that followed easily from the city's main reason for existence, as a service port to Rome (Ward-Perkins 1981: 143). The center of the town was thus constituted as a crossroads with two small temples and a small open area that may have included the land that later came to host a Flavian basilica, which seems from its stratigraphy to have been previously unoccupied (Kockel 1992: 101).

During the reign of Augustus, following his establishment of the cult of the *Lares Augusti* in Rome, a spot was chosen opposite the main *decumanus* from the larger temple and near to where that street opened up into the small plaza there, like a kind of crossroads altar (*compital*), as the organizational center of a slowly expanding new imperial forum. Later, under Claudius when the Ostian *lares* cult was founded, a marble-clad circular shrine was placed here, which, because of its suggestive effect as a kind of *umbilicus*, made obvious the growing axiality of the plaza. Yet this central point had earlier been used to center Ostia's new Temple of Roma and Augustus, built either under Augustus or Tiberius in the first true renovating phases of the forum (Schalles 1992: 192; Geremia Nucci 2005: 556). This temple was set back from the central intersection in such a way that a rectangular plaza came into existence between it and the now off-centered larger republican temple (Bloch 1962), and the arrangement of its podium, which seems not to have accommodated a large frontal stairway, probably included a *rostra* (speaker's platform), the use of which would have given added meaning to the new plaza space (Ulrich 1994: 216). Yet attention to this area was intermittent, and adornment with porticoes and buildings slow to come. The modest Claudian circular shrine was followed, in the reign of Domitian, by a new basilica that came to define the western side of the

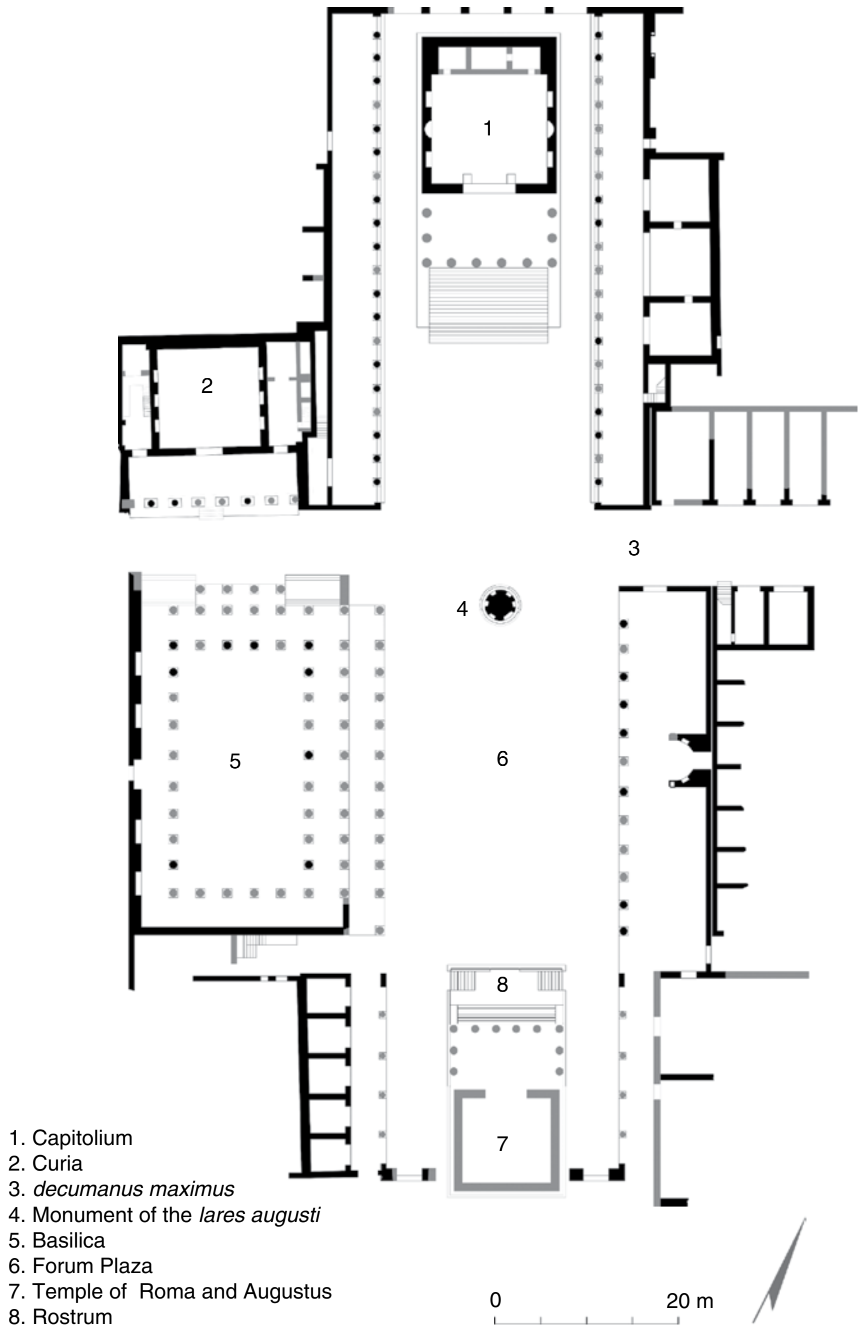


Figure 13.1 The forum of Ostia. *Source*: Andrew Blackwell after Ulrich 1996 and Paulus 2000.

forum. The basilica, expanding from the *decumanus* down to the Temple of Roma and Augustus, also opened on its western facade to a second plaza, thereby remedying some of the space constriction that remained a feature of this forum (Kockel 1992: 110). Contemporary with the basilica, and across the *decumanus* from its northern end, rose a small curia building, a sign that the city was aspiring to the urban identity implied by the forum-basilica complex. The makeup of Ostia's governing class is striking in that it seems to lack a competitive set of wealthy donor families otherwise found readily throughout the Empire, such that many of its public works were completed by memberships of guilds and priestly colleges.

Even so, Ostia finally did get its grand Capitolium during the reign of Hadrian, and most likely as a result directly of imperial attention. Perhaps the temple project was undertaken to remedy the persistent "lack" of axial symmetry in the forum, but it certainly arose in connection with the massive reconfiguration of northern Ostia as it expanded to the Tiber (Kockel 1992: 112). The two republican temples were demolished, the plaza was raised and set back northward to create an expanded axial response to the plaza in front of the Temple of Roma and Augustus, and the Capitolium rose to provide authoritative weight to what was finally an oblong rectilinear plaza. In the end, the plaza, framed by its two axial temples, ran approximately 130 × 40 m. This linearity was made abundantly obvious by the contemporary establishment of porticoes running fully down both long sides of the new plaza, the colonnades making the forum a culmination of the city's thoroughfares (MacDonald 1986: 51). As if to make this connection manifest, porticoes were built contemporarily and subsequently on all of the major streets of Ostia so that the linear effect of the forum radiated outward in all directions (Kockel 1992: 112).

Nîmes was given Latin colonial status at some point late in the career of Julius Caesar (Frakes 2009: 46), and its forum is dated by both stratigraphy and architectural style to the early years of the first century CE (Amy and Gros 1979: 188). The forum, centrally located within the comprehensive city grid, was a rectangular plaza (of ca. 140 × 70 m) dominated on its southern end by a podium-temple (known today as the Maison Carrée) and flanked to the east and west by double-aisled porticoes. Behind the temple, the plaza was closed with a slightly curved blind wall of Corinthian pilasters, the visual effect of which was probably meant to suggest a full *quadriporticus*. The northern end was bounded by the military Via Domitia, which entered the city through one of Nîmes' impressive gates and rooted the forum in the administrative force of the Empire. The linearity of this highway, as it passed east to west through the city, formed the principal physical and symbolic connection between the ancient sacred spring on a hillside not far to the west of the new forum and the new civic center.

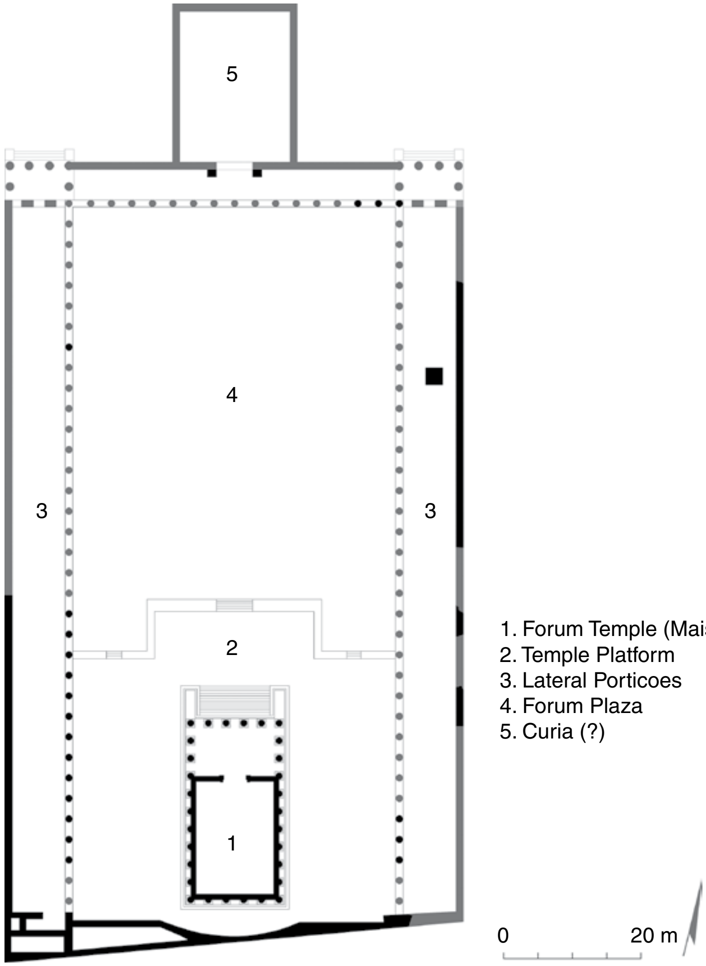


Figure 13.2 The forum of Nîmes. *Source*: Andrew Blackwell after Balty 1960 and Célié and Monteil 2009.

The forum's interior also articulated a set of linear arrangements. Perhaps most noticeably, the plaza was divided in two, each section on its own level. The pavement around the temple was elevated more than a meter higher than the forum pavement to the north and reached by a large central stairway, rising on axis with the temple, and two smaller flanking lateral stairways. Sacrificial altars stood at the head of the two smaller stairways, marking the sanctity of the higher space and emphasizing the open width of the central stairway. This division through elevation was not only visually striking but gave the pedestrian a bodily awareness of passage from one half of the forum to the other. To counterbalance this effect and to underscore spatial unity, the surrounding porticoes ran at the same level around the entire plaza, which may have created the impression that

the northern half of the forum was sunken rather than the southern elevated. The northern portico fronted a stately building, perhaps a curia, which was paved in gray, rose, white, and green marbles and yellow revetment, its doorway bordered by white marble pilasters that mirrored those of the Maison Carrée across the plaza. The lateral porticoes opened centrally onto the exterior street-grid, the interruptions marked by corniced marble pediments that created, in spite of their mirrored form, two facing *porticus triplices*. The forum thus took on the common western tripartite form, counting the curia for now as the administrative "third" of this formula (as yet no basilica has been recognized at the site).

The garland frieze of the Maison Carrée, dedicated (if the tortured remains of its inscription can rightly be deciphered) as a temple to the divinized grandsons of Augustus as "Princes of Youth," has already been mentioned as a provincial manifestation of the Augustan visual vocabulary of floral abundance. The fragmentary remains of the surrounding porticoes indicate that the entire complex was saturated with the ideology of Augustan prosperity. The porticoes rose with monolithic limestone columns (probably given a hard stucco coating with fluting, perhaps imitating marble) to crowning Corinthian capitals. The limestone entablature ran in two levels and was decorated on both its exterior and interior sides – garland swags inside and a frieze of heavy garlands facing outward upon the temple, offering bundles of figs, pomegranates, acorns, and pine cones, as well as laurel, oak, and wheat leaves, which were "fixed" in place with carved nails and fluttering stone ribbons. The cornices above this frieze sported lions that on sunny days peered down upon the square and on rainy ones poured forth lancing streams of runoff into smoothly outfitted drainage channels. The lions and garlands, though taking different formal appearances, mirrored those on the temple.

Inside, the porticoes were divided by an interior order that held up the sloping woodwork of the slate-covered roof, while the spatial rhythm of the covered walkway was completed by pilasters fronting the blind back walls. Bound by pilaster and columns, as by mosaic floor patterns, these shaded bays were nevertheless permeable and invited free movement in and among them. The multi-colored marble revetment added to this dynamic effect and, to the occupant educated in the origins and connotations of different stones, would have described in a purely symbolic way the power and comprehensiveness of the Roman world (Isserlin 1998). Taken altogether, the visual program of the Forum of Nîmes was very like that of the lavish Forum Augustum in Rome itself, a provincial manifestation of imperial grandeur (see Chapters 3 and 11).

Abundant remains demonstrate that the citizens of Nîmes placed themselves both literally and symbolically within the forum's verdant and lavish Augustan order. Foremost, public honorific statuary installed their personae amongst the columns. Albisia Secunda, daughter of Gnaeus, was commemorated on a statue base found fallen into the space of the forum plaza, but certainly once placed before the colonnade (*CIL* 12.3394). In the eastern portico stood a dedication

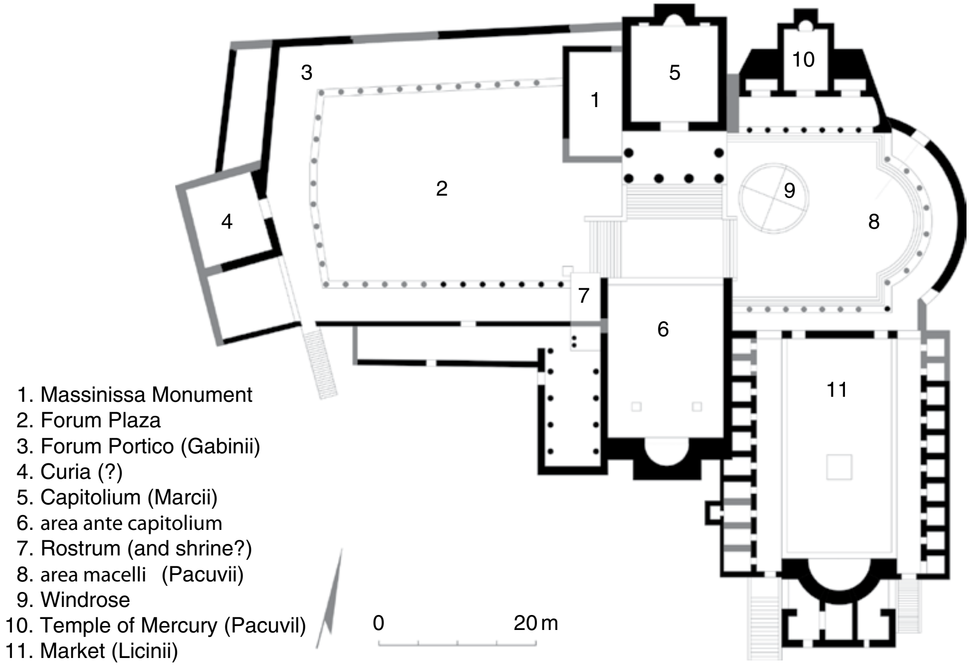


Figure 13.3 The forum of Dougga. *Source*: Andrew Blackwell after Poinssot 1958.

(perhaps of an artwork) by Marcus Adrastius Secundus (*CIL* 12.3136), while nearby was placed a funerary commemoration of Bucconia Sige (*CIL* 12.3480). Also in the eastern portico was found the laureled bust of a young emperor wearing a gorgon cuirass. A headless male in a toga (*togatus*), carved in limestone, wears a distinctive amulet (*bulla*), most likely a boy standing in the presence of the divine youths presiding in the temple, while another male wears a tunic and mantle. Women and men, living and dead, *togati* and tunic-wearers, those honored and those honoring: these sculptural works are the results of public actions taken by people whose lives and goals were ephemeral, yet all obtained a permanent space among the columns they experienced more fleetingly while living.

Dougga's settlement dates back to at least the early second century BCE, when it was patronized by the Numidian royal family. The famous funerary monument of Prince Ateban still stands as a reminder of the city's pre-Roman past, and the location of the city's center, which would evolve into the forum, was similarly marked by a shrine to King Massinissa, built in 138 BCE during the reign of Micipsa. This shrine, only recently recognized as more than a forum fountain, was commemorated in both Libyan and Punic, and its preservation at the base of the city's Capitolium made it a precursor both to Roman civic government and to other honorific monuments in the forum porticoes. This Capitolium has often suffered the critique that it was imposed upon the space in an insensitive, even incoherent, way (Gros 1996a: 229, for example, describes it as a *désinvolture*).

The residents of Dougga, rather, were careful to build up their civic spaces while preserving references to the past, and the several connected spaces that together formed the forum offered Dougga a means to interpret that general past as well as the different leading roles played by prominent local families. A sort of accretive effect, it was noted earlier, is in any case typical of North African public spaces, and Dougga's forum makes elegant use of this regional preference.

During the civil wars that ended the Republic, Dougga was attached to Africa Proconsularis, and although its development in the Augustan period is obscure, stratigraphy and epigraphy together suggest that the Tiberian forum included its stone pavement, an altar to Augustus, a shrine to Saturn, and a temple to the imperial cult that may have stood where the later Capitolium was built. This first forum, although much transformed by projects during the Antonine reigns (not to mention its rebuilding as a Byzantine Fort!), can be reconstructed as a longish rectangle running west to east on a sloping hillside shelf. This area lay approximately one third of the way down Dougga's impressive hill, and although some construction spread upwards to make the forum more central than it now appears, the major neighborhoods grew downhill in loose rings of terracing that allowed the forum rather grandly to preside. Dougga's topography allowed for great visibility – both of the monuments as they rose in the urban fabric and of the expansive valley below. In this environment, competitive elite practices of building and self-display cannot surprise.

The families known to have adorned the forum in a competitive/cooperative evolution include the Gabinii, Licinii, Marcii, and Pacuvii (Rives 1995: 100–172). The paved area was expanded under Claudius by Marcus Licinius Rufus, who appended a market with a statue of Mercury to the forum's eastern end, on a terrace above lower neighborhoods. The forum porticoes were installed by Gabinius Felix Faustinianus during the reign of Antoninus Pius and given mosaic floors, red-veined column shafts, and white marble Corinthian capitals. The imposing Capitolium was built by Lucius Marcius Simplex in the years after Antoninus's death, perhaps atop an earlier temple that had been dedicated to the imperial cult. The portion of the forum to the east of this new temple, called the *area macelli* in ancient times but now known as the Plaza of the Windrose for the large sundial and wind compass inscribed on its pavement, was formalized under Commodus. Quintus Pacuvius Saturus and his wife, Nahania Victoria, here donated a temple to Mercury and porticoes to match the earlier Gabinian branches nearby, including the elegant hemicycle that closed the forum to the east. In the end, the irregularly composed plaza expanded to approximately 90 × 30 m in size. Excavation indicates that the exuberant inscribing of names on the forum buildings was matched by the numerous statue bases dedicated to gods, to emperors, and to local donors, creating an assembly of honors corresponding basically to that discussed for Nîmes (Poinssot 1958: 40).

No certain location for a curia or basilica has been identified, although the open space called the *area ante capitolium* may have served some administrative function, as may a columned hall immediately attached to it and fronted in 205 CE by a bronze-railed speaker's platform. The overall effect could be described as choppy, but the dislike of this effect (e.g., Schalles 1992: 209; Gros 1996a: 228; and even Poinssot 1958: 39) arises mainly, I submit, from the startlingly massive Byzantine wall that now overlies the area. Looking rather to the positive response noted generally in North Africa to massive podium stairways, and to the topographical prompts of the site itself, we may easily imagine a sense of additive continuity and of layered significance that was pleasing to its ancient users and that allowed for the rich establishment of all those ideas recognized as proper to a Roman forum.

The forum space occupied not only a central place in the urban layout of Roman cities in the western Empire; it also occupied a central place in Roman thought about city life, about ritual practice, about economic and social exchange, and about spectacle and visibility. Local citizens, intent on creating a smaller version of the Roman forum itself, installed the necessary buildings (temples, basilicas, curias, and porticoes) while simultaneously adapting to local topography and producing local political and ritual narratives. The decoration and outfitting of this essential Roman public space thus allowed for urban residents throughout the western world to *be* Roman in differently nuanced ways (see Chapter 20).

GUIDE TO FURTHER READING

The chapter on *fora* in Gros (1996a) is the most recent treatment of the subject, and its extensive bibliography is the best place to begin a project that looks into forum spaces generally. Although now nearly 50 years old, Ward-Perkins (1970) remains an excellent summary of the development of Roman forum architecture in its earliest phases, and a quick consultation of the bibliography in Cavalieri (2002) provides a good supplement for much of the archaeological bibliography since. MacDonald's second volume of *Architecture of the Roman Empire* (1986) also explores the spatial logic of Roman plazas, while Martin (1972) inquires into the role played by Greek architecture in the development of Roman practice. For continuously updating bibliography on the Forum Romanum itself, consult UCLA's website, the *Digital Roman Forum*. Because "the forum" is less an architectural type than it is a phenomenon of urban planning, there are numerous studies available that, while they may not directly address forum architecture, have much to offer those thinking about the role of the forum space in Roman life and culture. Some of these include the monograph of Wilson Jones (2000b) for its analysis of architectural practice generally; Kellum (1999) for its interpretation of Pompeii's performative public spaces; and the study of Roman-period Ephesus by Rogers (1991), both for its exploration of public space in a Greek city (not treated in this chapter) as well as for its presentation of civic pageantry for which the forum plaza served as stage.

CHAPTER FOURTEEN

Funerary Cult and Architecture

Kathryn J. McDonnell

Introduction

While only a few inhabitants of any town in the Roman Empire would have had the wealth or social standing to commission a major public building such as a theater or a temple, many more were able to commission a funerary monument for themselves, friends, or relatives. Archaeological evidence for the commemoration of the dead survives in the form of thousands of tombs, their contents, and epitaphs from cemeteries all over the Roman world. A few cemeteries are so well preserved that they give us a sense of "one of the most elaborate and variegated repertoires of funerary behavior to be found in any human society" (Purcell 1987a: 35). The necropolis of Isola Sacra (Figure 14.1), located between the two ancient harbors of Rome, illustrates not only funerary practices, but also some of the interpersonal dynamics that shaped tomb construction and the commemoration of the dead. Isola Sacra provides a model of a Roman necropolis through which we can explore tomb architecture, changes in design that correspond to changes in funerary practice, and the social meanings that surrounded a tomb.

1. A Landscape of Tombs

Since religious practices, traditions, and law dictated the standard placement of tombs outside the *pomerium*, the ritual boundary of a Roman city, the streets leading in and out of Roman towns became lined with the tombs of

A Companion to Roman Architecture, First Edition. Edited by Roger B. Ulrich and Caroline K. Quenemoen.

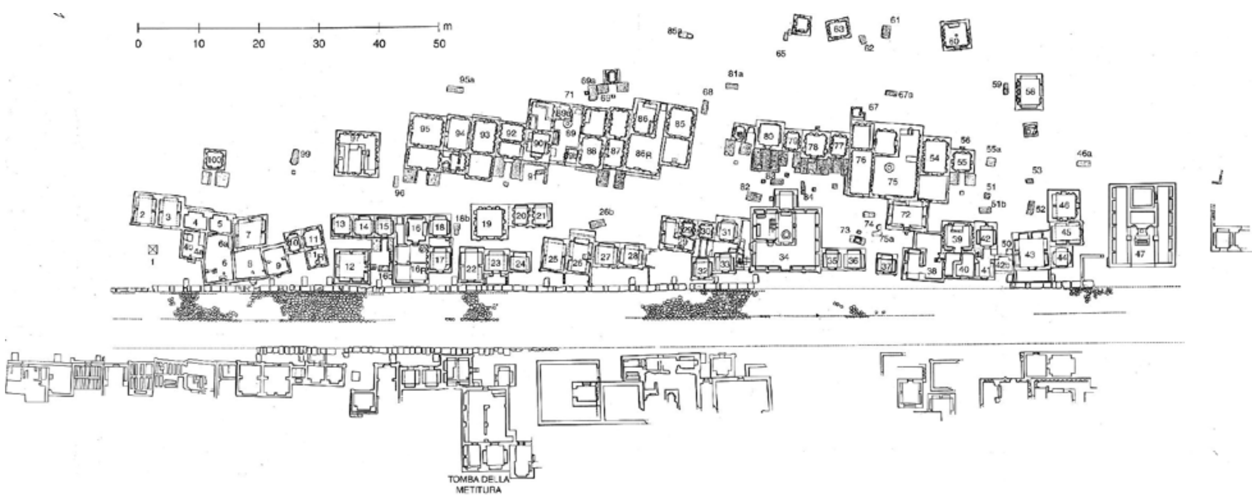


Figure 14.1 Isola Sacra: plan of the necropolis. *Source*: Baldassare *et al.* 1996: fold-out plan after page 213.

their inhabitants. While our impression from the Via Appia in Rome or the roads outside Pompeii might be of an orderly rank of tombs bordering the street, other cemeteries, such as Isola Sacra and Ostia, have several, often disorderly, rows of tombs flanking the road. The principles that governed the placement of tombs may have been the availability of lots as well as visibility from a road. It is difficult to know how far from a town tombs would have been placed along a road, and proximity to a population center offered logistical advantages in the construction and use of tombs. Tombs in the countryside, however, may have served as markers of property ownership, and some families, such as the Scipios, are known to have had tombs located both outside Rome and in the countryside (Livy 38.56).

Roman law placed few limits on tomb construction beyond the specification that burials and cremations occur outside the *pomerium*. Architectural practice, at least as recorded by Vitruvius, did not prescribe particular forms for tombs, and some well-known examples in Rome seem to have been inspired by architectural vocabularies familiar from other settings. The monumental Tomb of Caecilia Metella (first century BCE) imitates aspects of victory monuments (Gerding 2002), while the Pyramid of Gaius Cestius (late first century BCE) replicates tombs from other eras and areas of the ancient world. While the commissioners of these two examples may have followed elite models, such as the contemporary Mausoleum of Augustus (started in 28 BCE) or the pyramids of Egyptian and Nubian rulers, other tombs, such as that of Eurysaces, a wealthy baker, seem to have concretized and displayed aspects of an individual's daily life in their form or decoration (Ciancio Rossetto 1973; Petersen 2006). With the exception of unique monuments like these, however, tomb design tends to conform to local practices in funerary commemoration.

While tombs were built to house and honor the dead, they also belonged to the sphere of the living, who interacted with tombs on a regular basis. Some of these interactions, such as public dining during funerals and festivals, followed religious practices (Gee 2008). Graffiti on tombs drew attention to events elsewhere, such as gladiatorial games (Sabbatini Tumolesi 1980), and non-funerary activities, such as prostitution, may have taken place in the necropolis (Mart. 1.34; 3.93). In addition, some individuals chose to build tombs for themselves while still living, and their monuments reflect their attempts to shape their own public image before and after death.

2. Funerary Cult

Tombs were the focus of rituals and religious practices, as well as a means of channeling emotion into socially accepted forms. Our understanding of Roman funerary rites and the rituals that took place after the interment of the

deceased is unfortunately fragmentary and woven together from diverse literary and archaeological sources that range widely in date and reliability. No one source describes a "typical" funeral or tomb, and we must synthesize the extant sources to create a picture of Roman funerary practices; useful syntheses have been offered by Bodel (1999), Lindsay (2000), and Johanson (2011).

The best-known description of a Roman funeral was written by Polybius in the second century BCE (Polybius 6.53–54). Polybius discusses an elite funeral during the Roman Republic as part of his broader analysis of Roman customs, specifically the inculcation of bravery in Roman men. In Polybius's account, the funeral of an aristocratic man culminates in a public ceremony held in the Forum Romanum. Aspects of the ceremony include: a funerary procession to the forum; the display of the corpse on the speakers' platform in the forum; a speech praising the deceased, preferably given by his son; and the impersonation of the deceased's illustrious ancestors by individuals wearing masks along with clothing and insignia appropriate to political offices of those ancestors. From the forum, the mourners and the body, carried on a bier, would have gone to the site of burial or cremation.

The rites Polybius describes were only employed among a restricted segment of Roman society, the senatorial class, and, after the end of the Republic, primarily for members of the imperial house. Most funerary processions probably proceeded directly from the home to the site intended for the burial or cremation of the corpse. A well-known limestone relief from Amiternum (first century BCE) depicts a funerary procession in which the body of the deceased rests on a bier carried by bearers and escorted by family members, including slaves, professional mourners, and musicians. The funeral procession and the rites at the tomb offered an opportunity to display grief publicly and to showcase the family's wealth, as the employment of professional mourners and musicians, offerings at the pyre, and a funerary feast all offered an opportunity for extravagance. The corpses of the poor would have been given a far simpler treatment, and many would have received mass burial or mass cremation (Bodel 2000).

Both literary and archaeological evidence indicate that funerary rites, including sacrifice and ritual meals, were celebrated at the tomb. Commemorative rites took place annually on the birthday of the deceased and during religious festivals for the dead, including the *Parentalia*, the *Rosalia*, and the *Violaria* (Ov. *Fast.* 2.533–70; Gee 2008). On festival days as well as at familial ceremonies, relatives of the dead placed offerings at the tomb and took part in communal dining. Careful excavation has revealed possible traces of these rituals, such as offerings of food at tombs in Leptiminus and Pompeii (Stirling 2004; Matterne and Derreumaux 2008). Some tombs included permanent banqueting couches as well as ovens and wells, all of which would have facilitated communal dining. Funerary rites and festivals for the dead

created the possibility of display through consumption, the cathartic performance of emotions, the cultivation of the memory of individuals and the family, and the propitiation of the spirits of the deceased.

3. Why Build a Tomb?

Tombs of all types and sizes, from the humblest interment in a broken amphora to the dynastic complexes of the emperors, served a number of critical functions in addition to the disposal of the dead. The desire to fashion a lasting image of themselves and their family line was one force behind the construction of tombs by the emperors (Davies 2000). Studies of the tombs built by Roman freedmen emphasize their desire to construct a family, a privilege denied to them while enslaved (Petersen 2006). Pliny the Younger discusses the importance of a tomb as a means to perpetuate one's memory after death, illustrating the essential function that tombs played in Roman society as a locus of memory and reputation, both for the commemorated and for a dutiful heir (Pliny *Ep.* 6.10; 9.19). Cicero's ruminations over a suitable memorial for his deceased daughter Tullia highlight another important aspect of Roman tombs: their function as a formal, socially appropriate channel for grief (Cic. *Att.* 12.18, 19, 35–38). While self-promotion and competition for social standing have been viewed as key motives behind the construction of Roman funerary monuments (von Hesberg 1992), many other factors, such as familial ties, emotion, and legal duties, would have influenced the commitment of resources to funerary commemoration and help explain the range of tombs, from humble to grand, built in Roman cemeteries.

4. The Necropolis of Isola Sacra

One of the best-preserved cemeteries from the Roman Empire is the necropolis of Isola Sacra (Figure 14.1 and Figure 14.2), which lies along the road between Ostia and Portus, the ancient port towns of Rome. The necropolis gives the modern visitor a sense of visiting a town of the dead, partially because the form and placement of the monumental tombs are reminiscent of modern housing subdivisions, as Andrew Wallace-Hadrill (2008a) has noted. More than 140 monumental tombs, built from the late first century CE to the fourth century CE, have been excavated at Isola Sacra, but these tombs represent only a fraction of the activity at the necropolis (Calza 1940; Baldassarre, *et al.* 1996). Over 600 burials of human remains were carried out in simpler forms, including interment in sarcophagi, tile graves, and cinerary urns, or placement directly in the ground, perhaps in a shroud. These



Figure 14.2 Isola Sacra: area view showing typical tomb types, including a semi-cylindrical vault tomb (Tomb 51b; cf. Figure 14.1) in the foreground, a chamber and enclosure tomb (Tomb 54), and a chamber tomb (Tomb 55) in the background. *Source*: McDonnell.

more modest interments should not be interpreted simply as a "field of the poor," but as an alternative to monumental tombs, one that may have been driven by factors other than financial resources. The cemetery at Isola Sacra was not a static place. Earlier, simpler tombs were often built over, and large tombs were subdivided by the heirs or reused, perhaps illegally, by unrelated individuals.

The inscriptions from these tombs, which record the names of commissioners and of the deceased, give us an indication of Roman relationships, ranging from the cordial to the more hostile. The inscribed texts tell us that tombs could commemorate a single individual, an entire family, including immediate kin, legal heirs, freedmen and freedwomen, and the slaves of the commissioner, as well as their descendants, or members of a funerary *collegium*. Many funerary inscriptions are formulaic, describing the deceased as dearest or most dutiful; relationships, such as parent, child, spouse; age at death; legal status, freeborn, freed, or slave; and legal formulae. Some epitaphs, however, reveal

family squabbles or rifts between former slaves and their masters. The inscription from Tomb 100 (see Figure 14.1) indicates the extent to which disputes might be concretized through a funerary monument, as it states: "Scribonia Attice made (this tomb) for herself and Marcus Ulpius Amerimnus, her husband, and for Scribonia Callityche, her mother, and for Diocles and for her freedmen and freedwomen and their descendants, except Panaratus and Prosdocia. This monument does not pass to an unrelated heir" (Latin text in Helttula 2007: no. 133). One wonders exactly what Panaratus and Prosdocia did that led Scribonia Attice to exclude them forever from her presence.

The chronological span of the Isola Sacra necropolis, the first to the fourth centuries CE, corresponds to a shift in Roman practice from cremation to inhumation as the standard treatment for the bodies of the dead. This shift is directly reflected in the internal arrangement of the tombs at Isola Sacra. The earliest tomb chambers (late first century CE to the mid-second century CE) were intended to hold cremated remains and designed with niches containing *ollae*, terracotta jars for ashes. Tomb chambers built after inhumation became standard practice in the mid-second century CE contain *arcosolia*, arched openings in the walls, and *formae*, pits in the floor, for the placement of bodies. A few tombs were designed to contain both cremations and inhumations, and some tombs that were originally designed with cinerary niches alone were modified by the addition of *arcosolia* and *formae*. Interestingly, this cultural shift may have met with resistance in some quarters, as the inscriptions from Tomb 87 state that the commissioners, Publius Varius Ampelus and Varia Ennuchis, "made the tomb for themselves, and for Varia Servanda, daughter of Publius, (their) *patrona*, and for their freedmen and freedwomen and their descendants on the condition that no sarcophagus is brought inside this monument" (Helttula 2007: nos. 106–107).

Most monumental tombs at Isola Sacra belong to one of three architectural types: chamber tombs; enclosure and chamber tombs; and vault tombs (Figure 14.2). Brick masonry that was left exposed, rather than faced with plaster, seems to have been the preferred building material, and ornamental exterior details, such as pilasters and pediments, were also rendered in exposed brick. The employment of elaborate brickwork that employs the visual vocabulary of public architecture seems to be typical in the second century CE, not only for tombs but also for utilitarian and domestic buildings such as the Horrea Epigathiana at Ostia (see Chapter 17). In stark contrast to the lively variation of tomb types in the late republican and early imperial necropoleis, such as those at Pompeii, the overwhelming impression of the Isola Sacra tombs is of conformity, rather than individuality, and this conformity cannot be explained simply by regional trends or the lifespan of the necropolis. Von Hesberg (1992: 42–45) has argued that the builders of these tombs deliberately privileged luxurious interiors over distinctive exteriors. Decorative details

and second stories, now lost, might have created greater distinction between the monuments.

The chamber tomb, also known as a cella or house tomb, is the best-known tomb type at Isola Sacra. This type appears at other sites, including the necropoleis underneath the Vatican and San Sebastiano in Rome. The type is also referred to as a "temple" tomb, although it is much simpler than the contemporary temple Tomb of Annia Regilla on the Via Appia. Chamber tombs at Isola Sacra consist of a rectangular or square structure with a vaulted roof and range from 2 × 2 to 6 × 6 m in size. The surviving roofs are barrel vaults, the presence of which was often masked by a gabled pediment on the facade. The walls were built in *opus reticulatum*, *opus latericium*, or in a combination of materials (*opus mixtum*). While the side and rear walls were often faced with painted plaster, the masonry of the facade was typically left exposed, and the decoration of the facade, including columns and figural intarsia, was executed in brick or terracotta. The entrance door was set off by travertine jambs, architrave, and lintel and is sometimes flanked by masonry banqueting couches accompanied by a square table support. Most chamber tombs have a single interior chamber and are one story high. The interiors of the chamber tombs were intended to hold multiple remains, cremated, inhumed, or both. The vault and walls of the interior, including the niches and *arcosolia*, were typically decorated with paint and stucco, and some also had mosaic pavements.

An enclosure and chamber tomb differs from a stand-alone chamber tomb primarily by the addition of a walled space in front of the chamber, creating an interior precinct or courtyard that was usually unroofed. As a consequence, the enclosure and chamber tombs are among the largest tombs at Isola Sacra, ranging in size from 4 × 6 to 12 × 12 m. These tombs were built in the same variety of materials as the stand-alone chamber tombs described above. While both types often have masonry couches flanking the entrance, only the enclosure and chamber tombs contain wells and ovens. The interior walls of an enclosure contain *arcosolia*, multiple rows of niches for ash urns, or both. Both the plans and masonry of these tombs indicate that while some enclosures were part of the original design, such as Tomb 87, most were added in a later phase of construction. The addition of an enclosure may have been intended to create a new ornamental facade for the tomb, as in Tomb 29, but seems more often to have been motivated by the desire to create additional spaces for burials. In a few instances, notably Tomb 94, the additional space created by an enclosure was subdivided and sold.

The vault tomb, also referred to as a chest tomb, a *cupa*, or a *cupula*, is a comparatively simple structure. Vault tombs average approximately 1 m wide × 2 m deep, although a few examples, such as Tomb 99, are significantly larger. There are two variants of this type at Isola Sacra: (1) a long, low rectangular box built in brick masonry and sealed by a low barrel vault; and

(2) a semi-cylindrical monument created by the placement of a barrel vault directly on the ground. The brick masonry vault tombs usually have a gabled frame for the funerary inscription and a niche for cinerary urns and funerary offerings on the short end of the tomb. Placement of the inscription on the semi-cylindrical vault tombs was determined by its visibility from the road. Both tomb types were typically faced with red plaster, and green foliage and other decorative elements were sometimes painted on the plaster. The vault tomb is known from other sites in Italy, as well as Spain, Portugal, and North Africa, and its appearance at Isola Sacra has been considered evidence that the builders were immigrants who brought their traditional burial methods with them (Romanó 2006; Stirling 2007).

A few monuments, such as Tomb 1 and Tomb 56, indicate that more unusual tomb types appeared at Isola Sacra. Tomb 1 is a small pyramidal monument in brick masonry faced with plaster, built in the Antonine era (second half of the second century CE). The pyramid and its square base measure 1 m in height and over 1 m on each side. The inscription, which was placed in the side facing the road, records the commemoration of a 37-year-old man from Gallia Aquitania named Gaius Annaeus Atticus by members of his household (Helttula 2007: no. 21). Tomb 56 is an *aedicula*, a small niche framed by two small tufa columns and crowned by a terracotta pediment, set on a masonry pedestal. The inscription commemorates a deceased son and is set in the bottom center of the pedestal (Helttula 2007: no. 61). The *aedicula*, which was originally attached to the right wall of Tomb 55, was built in yellow and red brick masonry. The center of the *aedicula* is filled with a terracotta intarsia depiction of a male figure, dressed in a tunic, standing in an open doorway. The form and decoration of Tomb 56 resembles the elaborate frescoed niches found inside the chamber tombs.

Examination of a few tombs at Isola Sacra in detail provides a sense of how these monuments were built, used, and changed over time and how they might reflect the changing concerns and finances of living commissioners. Tombs were built and modified for a range of reasons beyond their apparent purpose, the commemoration of the dead. These reasons include a change in relationships during the commissioner's lifetime, as in the case of Tomb 29; a desire to profit from tomb construction, as shown by Tomb 94; or changing familial circumstances over time, perhaps over several generations, as in Tomb 6a. In addition, tombs that seem relatively simple to modern viewers, such as the vault tombs, reveal complex dynamics of commemoration equal to the largest tombs in the necropolis.

Tomb 29 is one of the more elaborate tombs at Isola Sacra, and one of the most interesting (Figure 14.3). It began as a small chamber tomb built by a woman named Verria Zosime for herself and her husband, Lucius Verrius Eucharistus. Verria Zosime and another man, Verrius Euhelpistus, later



Figure 14.3 Tomb 29, Isola Sacra. The facade of Tomb 29 created in the second phase of the tomb. *Source*: McDonnell.

enlarged and remodeled the original single-room chamber tomb into a two-story, multiple-chamber tomb. The relationship between Verria Zosime and these men is clearly stated in the inscriptions: both men were her husbands, although presumably not at the same time.

In its earliest phase, around 160 CE, Tomb 29 was similar in size and design to many other simple chamber tombs in the necropolis. The tomb was built in brick masonry and measures 2.9 × 2.9 m (10 × 10 Roman feet). Like most of the chamber tombs at Isola Sacra, the entrance was framed by a travertine cornice, sill, and jambs. The marble inscription, surrounded by a decorative terracotta molding, was set directly above the door, and a figural relief in terracotta was placed to the left of the inscription. The inscription names Verria Zosime as the commissioner and future recipient and Verrius Eucharistus as the co-recipient (Helttula 2007: no. 37). The inscription tells us that Verrius Eucharistus was the husband of Verria Zosime and that he was well deserving (*benemerens*), a term that is generally used to describe a deceased individual. The terracotta plaque shows a man, possibly Verrius Eucharistus himself, at work at a gristmill or grinding stone. The similarity of this relief and others found at Isola Sacra to shop signs in Ostia and Portus has led to speculation that they served to advertise or celebrate the profession of the tomb commissioners.

The interior of the tomb, although presumably less visible to outsiders than the exterior, was extensively decorated. The chamber has cinerary niches in the upper zone of the walls and *arcosolia* and *formae* at ground level. The interior of the entrance wall has two rectangular niches, one on either side of the entrance. The rear and side walls each have a semicircular central niche, crowned by a terracotta pediment and by two smaller rectangular niches. The cinerary niches were decorated with painted plaster and stucco, including shells formed of stucco in the half-domes of the central niches and painted stars and flowers inside the niches. A terracotta cornice divides the upper zone of the wall from the lower zone containing *arcosolia*. There are three *arcosolia* (1.50 × 0.59 m), one on each wall, and three *formae* in the floor. The walls were faced with yellow plaster and painted with reddish-brown bands that emphasized the architectonic organization of the tomb. The springing of the vault was demarcated by a stucco astragal cornice on a light green band. Calza found a marble cinerary urn in the central niche of the rear wall, and Baldassarre's excavations revealed a polychrome figural mosaic pavement on the floor as well as a burial in one of the *formae*. The level of expenditure and the burials demonstrate that this tomb was not a temporary or incomplete structure.

Less than 20 years later, however, Verria Zosime and another man, Verrius Euhelpistus, remodeled Tomb 29, adding an L-shaped extension that included an enclosure, a second story, and additional vaulted chambers on both levels. The motivation for this remodeling may have been Verria Zosime's marriage to Verrius Euhelpistus, as the inscription placed on the new exterior states that Verria Zosime and Verrius Euhelpistus made the tomb for themselves (Helttula 2007: no. 38). Expansion of the original tomb produced a more complex and larger structure, approximately 5.75 × 5.35 m.

This new addition created a two-story facade built in high-quality yellowish-red brick masonry with accents in red brick. Three pilasters in dark red brick with yellow brick trefoil Corinthian capitals divide the lower story into two zones, one on the left and one on the right. A projecting red brick cornice runs across the top of the columns and around the building. The new inscription, set in a terracotta molding, was placed in the upper center of the left zone. Two terracotta relief plaques flank the inscription. The reliefs depict individuals at work with oversized tools hanging in the field and are usually interpreted as representations of a blacksmith's shop. The new entrance door, framed by a travertine cornice, jambs, and sill, was placed on the right side of the facade and in line with the entrance of the original tomb. A proposed reconstruction places a brick architrave and a pediment on this side of the facade (Calza 1940: 65, Figure 18).

Inside the new entrance, a narrow flight of stairs on the left led up to the second story. Only the lowest courses of the second story survive, but they

indicate that there were two rooms: a terrace at the top of the stairs and a tomb chamber behind it. The unroofed terrace is surrounded by a low parapet wall and paved with a black and white mosaic that shows a mill or grinding stone. The red brick facade of the upper chamber had a door framed by travertine and two narrow yellow brick pilasters. These pilasters do not directly align with those of the lower story, as they are set in slightly, perhaps to draw the eye up the facade. While it is difficult to visualize in the tomb's current state, the contrasting colors of masonry within each story and between them would have enlivened the facade.

The new L-shaped interior is divided into an unroofed antechamber and two cross-vaulted rooms. The antechamber lies immediately inside the entrance door and in front of the original chamber. It is paved with a black and white geometric mosaic that seems to have been laid in bands, perhaps to cover *formae*. There are two stacked *arcosolia* on the right wall of the antechamber. To the left is the arched entrance to the rest of the first floor, which is divided by another arch into two rooms, each originally covered by a cross vault. Each wall in these rooms has two stacked *arcosolia* and a small slit window. While the decoration is poorly preserved, there are traces of fresco, including still life scenes in the *arcosolia* and a yellow ground divided into fields by red bands on the walls and the extant vault.

Both the increased area and height of the tomb indicate a new commitment of economic resources to funerary commemoration and an increased interest in visibility. Even with other, now destroyed, tombs standing in front of Tomb 29, its increased height would have made it quite noticeable, as it would have been one of the few two-story structures in the cemetery. From a chamber tomb built by Verria Zosime alone, Verria Zosime and Verrius Euhelpistus created a new, lavish tomb, signaling to passersby both their marriage and their apparently expanded social aspirations.

While we tend to assume that tomb construction followed a straightforward sequence of events, in which a tomb's builders or commissioners wished to commemorate a deceased family member or to honor themselves while living, some tomb builders in Isola Sacra were driven by other goals. At least part of Tomb 94 (Figure 14.4) was built as a means to acquire wealth, rather than to display status or mourn the dead. Like Tomb 29, Tomb 94 has two distinct sections: an original chamber tomb and an enclosure built in a second phase of construction. Unlike Tomb 29, where the expansion of the monument was motivated by new family circumstances, the creation of an enclosure at Tomb 94 appears to have been motivated by the possibility of profit.

The first phase of Tomb 94 is a chamber tomb, built between 140 to 145 CE. The facade of the tomb was built in red brick, and the side and rear walls were built in *opus reticulatum*, which was probably faced with plaster. The entrance is located in the center of the facade and is framed by a travertine

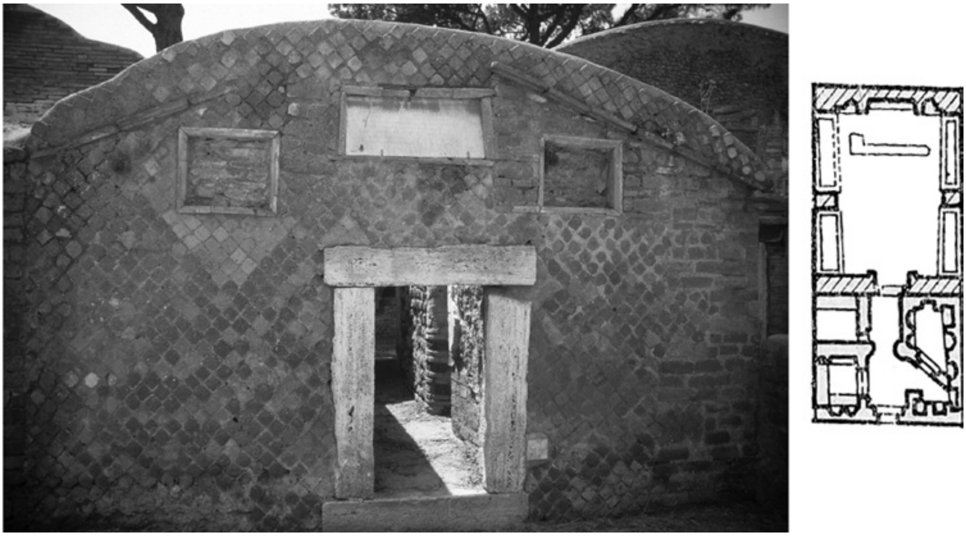


Figure 14.4 Tomb 94, Isola Sacra. Exterior view and plan. *Source*: McDonnell; plan after Calza 1940.

cornice, jambs, and sill. The inscription, which no longer survives, was centered above the entrance and flanked by slit windows. Cinerary niches and *arcosolia* line the interior walls, which are only preserved to half their original height. A pair of square cinerary niches crowned by pediments is centered in the rear wall, flanked by two stacked semicircular niches on each side. The lower zone of the side walls has two *arcosolia* and two small semicircular cinerary niches between them. The entrance wall has two stacked niches on either side of the door. Some traces of the stucco decoration of the chamber survive. Although individual burial inscriptions are rare at Isola Sacra, a few marble slabs were found below the cinerary niches, but they remained uninscribed.

The enclosure wall, added in approximately 150 CE, was built in *opus reticulatum* and tufa blocks and faced with plaster. The entrance was framed by a travertine architrave, jambs, and sill. An inscription was found in situ above the entrance, which reads, "To the gods of the underworld. Trophimus, slave of our Caesar, and Claudia Tyche (made this tomb) for themselves and for Claudia Saturnina, (their) most devoted daughter, who lived 15 years, 6 months, and 13 days and for their freedmen and freedwomen and their descendants. They bought a fourth of this monument as their space from Valeria Trophime" (Helttula 2007: no. 125). The interior of the enclosure was divided into an unroofed corridor that runs from the door of the enclosure to the door of the chamber and four unequally sized rooms, two on the right side and two on the left, that were lined with cinerary niches. An inscription, found in situ in the first room to the right, specifies that Gaius Galgestius



Figure 14.5 Tomb 99, Isola Sacra. *Source*: McDonnell.

Helius, who had bought the space from Valeria Trophime, made an *aedicula* containing 14 *ollae* (Helttula 2007: no. 124). Another inscription, found out of context, records the purchase of space from Valeria Trophime by Euhodus, an imperial slave, and Vennonia Apphis (Helttula 2007: no. 123). Based on these three inscriptions, Valeria Trophime owned the chamber tomb and built the enclosure in a subsequent phase of construction. She then sold sections of the enclosure to at least three different families. For Valeria Trophime, tomb construction was an opportunity to generate wealth.

While the large chamber tombs and chamber and enclosure tombs draw much of the attention of visitors to the site, roughly one third of the extant monuments at Isola Sacra are vault tombs. Vault tombs have been understood as a less expensive form of commemoration, particularly since many of these tombs, such as Tomb 99 (Figure 14.5), commemorated a single individual. Tomb 99 was built in brick masonry (1.40 × 2.55 m) that was sealed with a rounded vault and faced with painted plaster. An *aedicula*, a small masonry structure with a triangular pediment and decorative moldings, frames the funerary inscription on the end of the tomb. The inscription tells us that the tomb's commissioners, C. Petronius Andronicus and Petronia Maritima, built Tomb 99 for their 20-year-old daughter, Petronia Stolis (Helttula 2007: no. 132).

A few vault tombs, however, such as Tomb 83, seem to have been intended to contain multiple burials. Tomb 83 (Figure 14.6) is a semi-cylindrical vault



Figure 14.6 Tomb 83, Isola Sacra. *Source*: McDonnell.

tomb, measuring approximately 1 × 2 m, with a projection at one end. The projection contains a niche in which four *ollae* are still visible. The tomb was decorated with long green leaves painted on red plaster. The inscription, placed on the long side of the tomb, records the construction of this tomb by Lucius Sallustius Ianuarius for his 21-year-old sister Sallustia Romana (Helttula 2007: no. 100). Although some scholars (Baldassarre *et al.* 1996: 81; Helttula 2007: 79) have interpreted these *ollae* as locations for offerings, multiple *ollae* in other vault tombs, such as Tomb 6a, contained cremated remains. The presence of more *ollae* than required to inter a single individual indicates that although the inscription might only record one person, vault tombs could be used for multiple interments.

Tomb 6a illustrates the reuse of a burial area by the same family and the construction of multiple, superimposed tombs. Tomb 6a is a typical vault tomb, a rectangular box in brick masonry sealed by a rounded vault, and measures approximately 0.78 m high × 1 m wide × 2 m long. The inscription was placed on the end facing the road and states that Considius Secundus and Considia Berenice commemorated their well-deserving relative Considius Ianuarius (Helttula 2007: no. 24). The vault of Tomb 6a was opened, and six *ollae* containing ashes and set in a concrete pavement were found inside. Below the concrete pavement of this tomb, the excavators discovered another tomb, lined with tiles to form a box-like space and sealed with two tiles bearing

Hadrianic-era brick stamps. This lower tomb contained two vessels, an amphora filled with ashes and burnt nuts and a marble vase-shaped urn, which contained burnt bones. The marble urn was inscribed, "To the gods of the underworld. For Gaius Considius Successus here and Rufinus" (Helttula 2007: no. 25). The inscriptions from the marble urn and from the exterior of the vault tomb show that this location was used multiple times by the same *gens*, the Considii, and indicate that vault tombs may be part of a series of monuments that commemorated multiple members of a family over time.

The necropolis of Isola Sacra contains a range of tombs, from interments directly in the ground to multi-story funerary complexes that could have held dozens of remains. These tombs were typically built by an individual or a family group to create a permanent funerary monument, either for themselves or for a relative. They could commission an elaborate monument, purchase space in a pre-existing tomb, or purchase land on which a series of tombs might be built, modified, or developed over the course of an individual's lifetime or that of his or her descendants.

Not all aspects of the process of tomb construction are clear from the extant evidence. Many questions remain about the relationship between a tomb's commissioner and the workmen who built and decorated tombs. It is clear that commissioners made choices about the tombs, including the text of the inscription, as on Tomb 100, but it is difficult to discern the extent to which those choices were constrained by local customs, by building practices in the region, or by a dearth of alternatives in materials or tomb type. The building materials, elaborate exterior brickwork, and lavish interiors employed at Isola Sacra were not limited to funerary contexts, and the workmen who built these tombs were probably responsible for a variety of construction projects in the nearby towns.

The exact relationship between financial means and the monumentality and complexity of the monument constructed by a commissioner is problematic. While the vault tomb has been viewed as a less expensive monument, it may constitute a step in the development of the burial plot, perhaps towards increasing monumentality. In the case of the tomb of Verria Zosime, we can see that even an expensive tomb could be viewed as insufficient by its own commissioner and masked by a later monument. In addition, less archaeologically durable forms of expenditure on funerary commemoration, such as professional mourners and dining during festivals, are missing from the record.

Despite these questions and others about the process of tomb construction, cemeteries remain one of the few areas of Roman architecture where we can gain a sense of a local community and particularly of the desires of individuals to record themselves and their families and the emotions elicited by death. While we cannot observe a Roman funeral or religious rites, except indirectly though literary and archaeological sources, a walk through a necropolis, such

as Isola Sacra, reminds us of the concerns of individual Romans to remember their loved ones and to be remembered themselves after death and the role that funerary architecture played in those concerns and in their lives.

GUIDE TO FURTHER READING

The bibliography on Roman tombs, necropoleis, and funerary practices is vast, and encompasses a range of approaches from excavation reports to cross-Empire synthetic studies. Two studies, those of Henner von Hesberg (1992) and Jocelyn Toynbee (1971, reprinted 1996), present detailed introductions to tomb architecture and funerary practices. Von Hesberg provides an overview of monumental tombs across the Empire and through time, with copious illustrations and an extensive bibliography. Toynbee, while dated, remains the broadest introduction to Roman tombs and funerary rituals in English.

Many primary sources on death and burial have been collected in translation (Hope 2007). Discussions of Roman funerary ritual can be found in Bodel (1999), Lindsay (2000), and Johanson (2011), and Lindsay (1998) reconstructs the Roman funerary banquet. Morris (1992) and Hopkins (1983) examine Roman tombs and funerary practices in a socio-historical context, including the transition from cremation to inhumation, demography, and burial *collegia*. Maureen Carroll (2006) surveys the complex social dynamics recorded in Roman funerary inscriptions, particularly those from the western Empire.

The archaeology of tombs, including architecture, human remains, and grave goods, has been the subject of innumerable studies. The necropolis at Isola Sacra, excavated by Calza (1940), has been re-examined by Ida Baldassarre in an ongoing series of articles and a guidebook written with Bragantini, Morselli, and Taglietti (1996). There are two corpora of the inscriptions from Isola Sacra, Hilding Thylander (1951/1952) and Anne Helttula (ed.) (2007). Other scholars have explored particular aspects of the Isola Sacra tombs, including decoration (D'Ambra 1988), familial structure (Hope 1997), skeletal remains (Prowse *et al.* 2005; 2007), and freedmen as tomb builders (Petersen 2006). The necropoleis below the Vatican, a close parallel to Isola Sacra, have been published in a lavishly illustrated volume (Liverani and Spinola 2010). Examinations of other necropoleis can be found in von Hesberg and Zanker (1987), while collections of papers, such as Heinzelmann *et al.* (2001) and Pearce, Millett, and Struck (2000), present a lively range of approaches to funerary archaeology.

CHAPTER FIFTEEN

Building for an Audience: The Architecture of Roman Spectacle

Hazel Dodge

Introduction: Forms of Entertainment Buildings

The study of games and spectacle in the Roman world has traditionally focused more on the displays themselves than the buildings provided for their staging, and yet these venues physically represent major and permanent investment in these displays. Finance for these building projects was provided by a variety of sources, but from the Late Republic the urban elites identified spectacle buildings as appropriate vehicles for self-advancement through patronage.

There are two classes of buildings for entertainment closely identified with the Romans: the amphitheater, primarily for gladiatorial combat, and the circus, primarily associated with chariot racing. However, these cannot be examined without consideration of other related mass entertainment buildings, specifically theaters and *stadia*. All of these classes of building share features of design, building materials, and public functions, but their temporal development and geographical distribution varied widely across the Roman world. Within each class there was variation in terms of form, geographical distribution, and development. Indeed, it should be remembered that many public areas and buildings not specifically designed for sport and entertainment were used at different times: the forum for gladiatorial combat (Vitr. *De Arch.* 5.1.2); the baths for boxing, wrestling, and other athletic sports (Newby 2005); the Circus Flaminius in

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Rome for the display of crocodiles (Dio 55.10.8). These spaces required little modification and any additional facilities could be a temporary provision.

The buildings have a recognizable and definable architectural form (Figure 15.1). Theaters, amphitheaters, and circuses were all found across the Empire, whereas the stadium occurred only in Italy and the East. Each class had a *primary* function defined and acknowledged in modern scholarship. However, Roman entertainment venues tended to be multi-purpose, often already at the time of their original construction, or later modified (Humphrey 1996). For example, the circus is normally thought of as a venue for chariot racing, but it also became the favored location for large hunting and other animal displays, although these could also be staged in the amphitheater (Jennison 1937: 42–59; Dodge 2010: 47–62). Moreover, athletics displays and theatrical performances were an important part of circus activities, entertaining the audience between chariot races (Simpson 2000). Hybrid Gallo-Roman theater/amphitheaters combining features of two building classes are also examples of multi-functional venues (Golvin 1988; Dodge 2009). Thus modern attempts to impose simplistic entertainment categories on classes of buildings should be treated with caution (Dodge 2009).

Very few entertainment buildings have been fully excavated and properly published, making their dating and structural history problematic. Despite the massive scale of construction and public investment, some have been completely lost. Thus new discoveries in recent decades have been particularly important, advancing knowledge in the provision of these buildings and the engagement of the local populations in typically "Roman" cultural pursuits. For example, an amphitheater was identified and excavated in the late 1980s and 1990s in London, the provincial capital of Britannia (Bateman, Cowen, and Wroe-Brown 2008). In 2004, the first known circus in Britain was discovered at Colchester (Crummy 2008). The identification in 2006 of an amphitheater at Sofia (Bulgaria) has made another addition to the lengthening list of amphitheaters in the eastern part of the Empire, further emphasizing that Roman spectacles were enjoyed as much in the Greek East as in the Latin West (Welch 1998a; 1999; Velichkov 2009; Dodge 2009).

In common with all Roman building projects, the construction of entertainment buildings depended on locally available materials. The most recognizable of the classes is the theater, a term derived from the Greek "*thea*," which had several meanings, including the sense of sight and a sight (as in something being seen). Thus a *theatron* was a "seeing place," a place to see and also to be seen. Developments in both materials and building techniques meant that architects no longer had to rely entirely on an available hillside for structural support (the traditional Greek practice). Roman period theaters were characterized by the frequent use of vaulted substructures to support the seating (Sear 2006). The Roman theater was normally semicircular or D-shaped in plan; the orchestra was also a

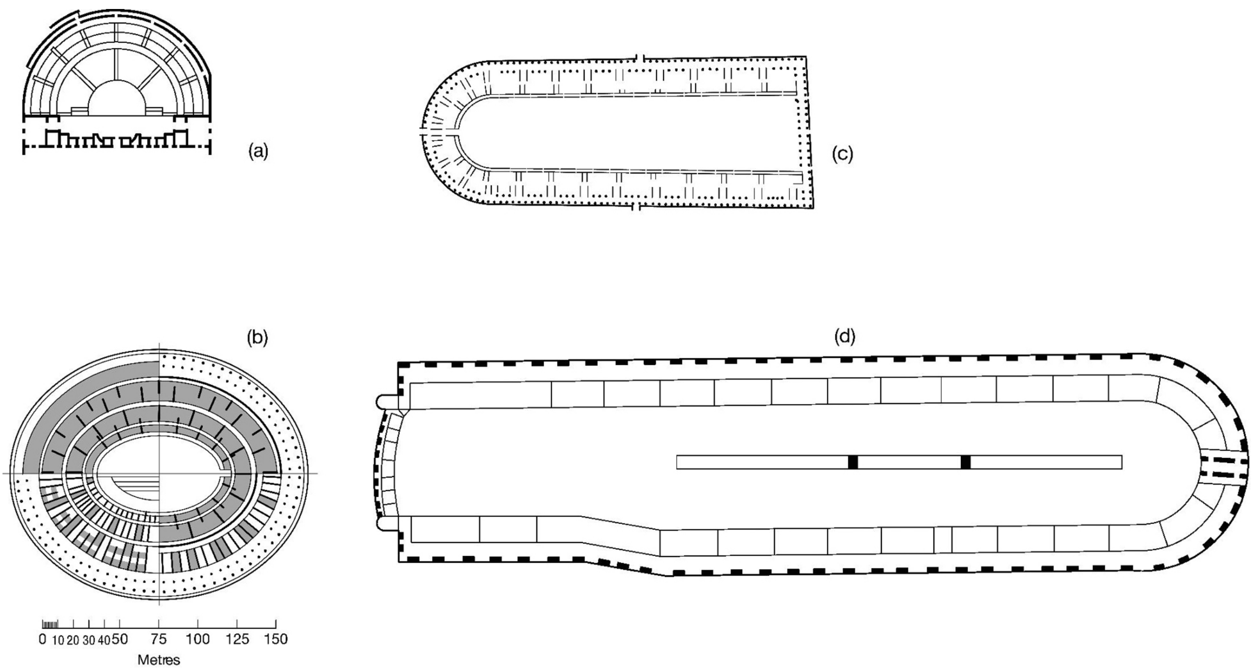


Figure 15.1 Comparative plans of Roman entertainment buildings based on (a) the theater at Orange, (b) the Colosseum, (c) the Stadium of Domitian, and (d) the Circus Maximus.

semicircle (in contrast to the circular orchestra of Greek theaters) and was no longer a performance area. Instead, it was part of the auditorium (Vitr. *De Arch.* 6.2), the paving often incorporating broader steps for the accommodation of movable seating for distinguished members of the audience; this was of particular importance in the context of laws associated with seating hierarchies in the theater (Edmondson 1996). Roman theaters always had a high stage building (*scaena*), creating an enclosed space, open to the sky, but cut off from its surroundings. In the eastern Mediterranean and in Magna Graecia, many Classical and Hellenistic theaters were remodeled in a more Roman form (although often still retaining the over-semicircular plan) – for example, at Ephesus (Turkey). Others were new constructions, such as the second-century-CE buildings at Aspendus (Turkey) and Bostra (Syria) (Sear 2006).

The permanent amphitheater was a class of structure first developed in republican Italy. It is recognizable by its elliptical plan, with an oval arena completely surrounded by seating (Golvin 1988; Welch 2007; Wilson Jones 2009b). This is the literal meaning of the Greek word "*amphitheatron*," which from the time of Augustus gradually came to be used for this structure (Vitr. *De Arch* 1.7.1; Aug. *RG* 24; see also Dio 43.22; Étienne 1965). The earliest datable permanent amphitheater is at Pompeii (Italy), and in the dedicatory inscription (*CIL* 10.852, 70–65 BCE) it is termed a "*spectacula*," a word usually used for the entertainments themselves, and one clearly employed here because such buildings had yet to acquire a specific terminology.

The third major class of Roman entertainment building was the circus, used primarily for staging equestrian displays, in particular chariot racing (Humphrey 1986; Nelis-Clément and Roddaz 2008). Its development was gradual; in the classical Greek world, there was no formalized building with any kind of distinctive structure for such competitions, apart from a complicated starting mechanism and gates at Olympia, described by Pausanias (Paus. 6.20.10–13; Dodge 2008: 133). By the Roman imperial period the circus had taken on a hairpin shape and was the largest class of entertainment building. Scale was dictated by purpose; circuses regularly accommodated races of up to 12 chariots. The arena length of the Circus Maximus was approximately 580 m with a width of about 79 m. Provincial examples measured 400–450 m (e.g., Mérida in Spain and Lepcis Magna in Libya). In the eastern Mediterranean there is much greater variety of dimensions, as with shorter examples at Jerash in Jordan (244 m) and Cyrene in Libya (351 m) (Dodge 2008). Many Greek and Latin architectural terms were similar in meaning and could be interchangeable, but this is not the case with the Latin "*circus*" and Greek "*hippodromos*." Both refer to a venue for various types of equestrian events, but there is a modern tendency to use one for the Latin West and the other for the Greek East as if they indicate two different building types.

The stadium usually had a similar plan to the circus but on a much smaller scale, 180–200 m in length, and without starting gates and a central barrier

(Dodge 2008). It traditionally accommodated displays of athletics, a form of entertainment which never enjoyed the popular following in Rome and the West that it did in the Greek East during the Roman period (Dodge 2010). In modern usage the term "stadium" is often applied to any kind of sports venue, often irrespective of design or use.

1. Locating Spectacle: The Structure and Context of Venues

The provision of entertainment buildings across the Roman world was determined by a number of local, regional, and pan-imperial factors. Theaters are the most common class found in both the eastern and western parts of the Empire, due to the several previous centuries of development in the Greek world where theaters were an integral component of both religious and urban environments. The monumental Roman circus and amphitheater were relatively late in development, and while they were primarily urban phenomena, their size and the scale of the displays they accommodated often necessitated a location on the periphery of built-up areas. At Pompeii and Aosta the amphitheaters were just inside the walls, but at Lucca and Verona they were outside. Such a location would have facilitated transport and secure accommodation of performers, particularly of animals where public safety was a critical issue.

In Rome, as a result of a senatorial ban, theaters were temporary structures until the middle of the first century BCE (Val. Max. 2.4.2). They are recorded in the literary sources from at least the early second century BCE, with comments that the provision of permanent venues would encourage days wasted in idleness (Tac. *Ann.* 14.20–21)! Temporary theaters for dramatic performances were set up in close association with cult centers (Goldberg 1998). As displays became more politicized in the capital, so more defined facilities developed to accommodate spectators (Beacham 1995: 62–63; Coleman 2000: 219–220). A particularly elaborate example of a temporary theater was apparently built by Marcus Aemilius Scaurus in 58 BCE (Plin. *HN* 36.113–115). Temporary seating was also provided for gladiatorial displays (*munera*) which had their origins in aristocratic funerary rites, and as a result they were staged in the Forum Romanum. Wooden amphitheaters continued to be built into the first century CE, in Rome's Campus Martius by Nero in 57 CE (Suet. *Ner.* 12; Tac. *Ann.* 13.31) and at Fidenae during the reign of Tiberius, where Tacitus recorded that a temporary structure collapsed due to poor foundations and an over-large crowd (*Ann.* 4.62–63). The design of such temporary facilities in the Forum Romanum may have provided a model for the ovoid plan of early permanent amphitheaters elsewhere in Italy (Golvin 1988: 56–58; Welch 2007: 30–71). It was not until 29 BCE that Rome received its



Figure 15.2 View of the Amphitheater, Corinth. *Source*: Dodge.

first permanent amphitheater. The amphitheater of T. Statilius Taurus stood in the southern Campus Martius, financed by the *manubiae* (a general's share of the booty) he received from his successful campaigns in Africa (Cass. Dio 51.23.1; Suet. *Aug.* 30.8; Golvin 1988: 52–53; Welch 2007). Little is known about it except that it was small and built of stone and wood; Dio referred to it as a "hunting theater" (*theatron kunêgetikon*), and probably it was never used as a fully public venue. It was destroyed in the fire of 64 CE.

Welch has demonstrated that the provision of amphitheaters in Italy and the western provinces during the late republican and early imperial periods was linked to army training and to veteran settlement and entertainment, as at Pompeii and Capua (Welch 2007: 88–91). These first permanent amphitheaters came to represent an important display of Rome's power and culture in Italy. Late first-century-BCE colonies also provided the context for the earliest amphitheaters in the provinces, as at Carmona (Spain) and Corinth (Greece) (Figure 15.2; Golvin 1988: 41–42; Welch 2007: 255–259; Dodge 2009; 2010). In the early imperial period, this colonial association continued within Italy – for example, at Aosta and Verona. Both colonies and provincial capitals provided important contexts for the construction of

amphitheaters in the provinces, as at Lyon (France), Mérida (Spain) and Carthage (Tunisia) (Golvin 1988: 82–83, 109–110, 122–123; Bomgardner 2000:128–141).

Amphitheaters survive in large numbers in Italy, North Africa, the Danube region, and the western provinces, although with much variation in size and design – for example, at Capua (170 × 139 m), second in size only to the Colosseum; Nîmes and Lyon; Tarragona and Mérida (Spain); Carthage and El Djem (Tunisia); and Lepcis Magna. Extramural amphitheaters were also built and survive at some tribal capitals in Britain, as at Silchester and Cirencester (Wilmott 2008). Legionary bases around the Empire were routinely provided with an extramural amphitheater – for example at Vetera (Germany); Caerleon and Chester (Britain); Carnuntum (Austria); and Lambaesis (Algeria) (Golvin 1988: 80, 88; Futrell 1997: 147–152). All are relatively small, both in overall size and scale of construction.

In the British and Gallic provinces, a hybrid structure, built to function as both theater and amphitheater, was often constructed – for example, Les Arènes in Paris. It is unclear if these "theater-amphitheaters" (also, confusingly, referred to as "semi-amphitheaters" by some modern commentators) were more amphitheater than theater and what kind of performances took place in them (Golvin 1988; Dodge 2009). They were generally not elaborately constructed, utilizing earth banks retained by masonry walls as supports for the seating area (*cavea*). Similar theater-amphitheaters were also associated with rural shrines in Gaul, as at Sanxay, and these perhaps should be interpreted as a continuation of the classical connection between temple and festival games as seen in the Greek sanctuaries at Delphi and Epidauros, and continued in Italy – for example, at Pietrabbondante (see Chapter 12). The only example of this type of hybrid theater-amphitheater outside the northwestern provinces is at Lixus in Morocco (Dodge 2009). There may also have been an economic element in this design, maximizing the facilities available in a single building.

By comparison with the West, there are far fewer purpose-built amphitheaters known in the eastern Roman provinces. This has been traditionally explained by the idea that the Greek East was more "civilized" than Italy and the western provinces, and therefore would not have indulged in the kind of blood-sports these structures accommodated. However, 22 purpose-built amphitheaters have already been identified in the East (Dodge 2009). The earliest example was constructed at Antioch-on-the-Orontes in the later first century BCE (Malalas 216.21–217.4; Lib. 2.219). Malalas referred to it as "a place of single combat" (*monomachikon*). The simple form of this building, partly rock-cut with no arena substructures, was probably similar to other contemporary amphitheaters known in Italy and the West – for example, at Paestum (Italy) and at Carmona. None of the amphitheaters in the Roman



Figure 15.3 View of the Amphitheater, Pergamum. *Source*: Dodge.

East has the monumentality and arena substructures seen in the West, as Nîmes, Mérida, or El Djem, except perhaps Pergamum (Figure 15.3) and Cyzicus (Golvin 1988; Dodge 2009).

Circuses were constructed in fewer numbers across the Roman world, partly to be explained by their imperial associations. The Circus Maximus in the center of Rome was the largest circus of the ancient world, 600 m long with an estimated seating capacity of 150,000–250,000. Its location adjacent to the Palatine Hill was determined by Rome's regal history, and it housed some of Rome's earliest shrines – for example, the altar of Consus near the far turning post (Humphrey 1986: 64–67). Subsequently, its close association with the imperial palace on the Palatine established an ideological pattern that was replicated in the late Roman regional capitals such as Milan (Italy), Sirmium (Serbia), Thessaloniki (Greece), and Constantinople (Turkey) (see Chapter 6). There were several other circuses constructed in Rome, with similar physical dimensions: the Vatican Circus started by Caligula and finished by Nero and the early fourth-century-CE Circus of Maxentius on the Via Appia (Humphrey 1986). Although circus games are attested elsewhere in Italy, there is little evidence for circuses built before the third century CE (Humphrey 1986: 571).

The provision of circuses across the Empire was uneven. Over a dozen circuses are archaeologically attested in the Iberian peninsula (Humphrey 1986; Nogales Basarrate and Sánchez-Palencia 2001); Spain was particularly famous for horse-breeding. Two particularly well-preserved second-century-CE

examples are found at Mérida, provincial capital of Hispania Lusitania, and at Tarragona, capital of Hispania Tarraconnensis. Their exact urban locations demonstrate the physical challenge of accommodating such large structures as well as emphasize their important ideological role. The Mérida circus is located outside the city walls, while at Tarragona it was built on a terrace at the heart of the city below the sanctuary of the imperial cult. The vaulted substructures of mortared rubble have been well preserved in the lower stories of modern buildings.

In the East, where equestrian events were already well established, monumental circuses had an equally uneven distribution (Dodge 2008). A number of eastern cities are known to have staged chariot racing at some time, but fewer cities possessed a monumental circus, and these tended to be major Roman cultural and administrative centers. There were essentially two types of circus structures built in the region. The larger type, such as at Tyre (Lebanon), Antioch-on-the-Orontes, and Bostra, was closely similar to circuses built in the West in terms of overall proportions and length (400–450 m) (Humphrey 1986; Dodge 2008). The smaller type – for example, at Jerash (Jordan) and Corinth (Greece) – was much shorter (ca. 300 m) (Ostrasz 1991; 1995; Dodge 2008). This lack of uniformity reflected the complex cultural mix of the eastern Mediterranean, which allowed both Roman- and Greek-style games to be staged. Circuses were often intended to be multi-functional from the outset, or were further remodeled to accommodate a range of entertainments.

There are many venues that do not fit simple modern characterizations, both in terms of ancient terminology and the range of events staged within them. This is particularly true of the eastern Empire, which had an already existing building stock of theaters and *stadia*. What has become clear in recent years is the extent to which venues were modified and remodeled to maximize the flexibility for staging a range of entertainments. This was achieved in a number of different ways. In theaters, the most common method was the construction of a wall around the orchestra, often with the removal of the lower rows of seats and the reduction of the stage-building to create an arena-like space, as at Corinth (Stillwell 1952); the removal of the seats created a high podium wall providing both protection and better viewing for the spectators. These modifications are mainly second century CE in date, or later, but some occurred as early as the first century CE, as at the Theater of Dionysus in Athens. *Stadia* were adapted in a similar way at the curved end of the structure to create a mini-arena, for example at Perge (Welch 1998a; 1999; Dodge 2008; 2009).

Some venues were built to be multi-purpose right from the start. At Caesarea Maritima an excavated entertainment building attached to Herod's summer palace (Porath 1995; Patrich 2002) was termed an "amphitheater" in

the historical sources (Jos. *AJ* 15.341), but it was a hairpin shape in plan and 290 m in length. It had starting gates and a central barrier for horse and chariot racing. The high podium wall surrounding the arena was decorated with animal hunt frescoes (Dodge 2008). Thus, it underlines the necessity for scholarly flexibility in interpreting the architectural form and function of entertainment buildings and care in the employment of terminology employed in their discussion (Humphrey 1996; Dodge 2008; 2009).

The structure at Caesarea was not unique in the Roman East as a multifunctional entertainment venue. The stadium at Aphrodisias is one of the best preserved ancient structures of this class, dating to the later first century CE, with an arena 270 m long and 59 m wide at its broadest point (Welch 1998b). Unlike the canonical stadium, it terminates at both ends in a curve, thus enclosing the whole arena with seating. The epigraphic record from Aphrodisias is vast and attests to a wide range of entertainments (Roueché 1993: 1–11; 161–221); there is ample evidence for athletics contests, but also indications that the stadium was used for more Roman types of spectacle, such as animal displays and probably also gladiatorial events (Roueché 1993: 61–80, and nos. 14, 15, 40, 41, and 44). The podium wall surrounding the arena was 1.60 m high and had holes cut into its stonework for timber uprights to support nets such as have been noted at Caesarea Maritima and elsewhere in modified theaters (Gebhard 1975; Welch 1998a: 558–559; Dodge 2008; 2009). For people seated in the audience these would have provided security from animals leaping up out of the arena; such a system was also in place in the Colosseum (Connolly 2003).

2. Designing for an Audience: Structure, Materials, and Amenities

Roman entertainment buildings share a number of design features directly related to their function, most importantly to provide secure seating, good visibility, and easy entrance and exit for thousands of spectators. Tacitus (*Ann.* 4.62–63) recounts the story of Atilius, who was banished because he had failed to provide solid enough foundations for the timber superstructure that itself had been assembled inadequately for an amphitheater at Fidenae.

The key element in the constructional design of permanent Roman entertainment buildings was the use of vaulting, so that the substructures were not solid material, but incorporated spaces that would provide easy access to the building and free, but ordered, circulation for the spectators. Construction materials and techniques also had a direct bearing on structural design. The general pattern in Roman structural architecture was the employment of locally available materials, hence in Italy the development of concrete (*opus caementicium*; see Chapter 9). Roman concrete and its provincial equivalents

of mortared rubble and fired brick were all light and adaptable materials, ideally suited for the vaulted substructures of Roman entertainment buildings. Ashlar masonry, particularly in parts of the eastern Mediterranean, was also used to great effect (Dodge 1990). While it made economic sense to take advantage of the local topography to support parts of the building, increasingly venues were sited for other reasons, and vaulted substructures helped to enhance their context, meaning, and visibility within the urban landscape.

The use of *opus reticulatum* as a facing technique is of particular interest in the construction of amphitheaters and theaters in Italy. It developed initially in Rome and was most prevalently applied to public buildings, but outside central Italy and Campania, instances of *opus reticulatum* are most commonly associated with theaters and amphitheaters (see Chapter 9). The appearance of the technique on quintessentially Roman "prestige" buildings is so striking outside the main zones of *opus reticulatum* use that it has been suggested that it was the work of organized teams of carpenters, masons, and stonecutters sent out from Rome and Naples. *Opus reticulatum* allowed speed in construction (see Chapter 10), but other factors, such as political or ideological motives, also influenced its application (Torelli 1995b: 213–246).

As already mentioned, the earliest datable amphitheater was constructed at Pompeii (Golvin 1988: 33–37; Welch 2007: 74–77). According to the dedicatory inscription, C. Quinctius Valgus and Marcus Porcius, *duoviri* of the new colony established at Pompeii in 80 BCE, paid for the structure with their own money and in accordance with their magistracies (*CIL* 10.852). The building was located just within the eastern city walls and measures 135 × 105 m externally. In common with other early amphitheaters, it was not provided with the extensive vaulted substructures, and the main support for the seating was formed by fill from digging out the sunken arena. The exterior retaining wall at the upper level was built of *opus caementicium* faced with *opus incertum*, strengthened by buttresses, and with staircases that provided spectator access to the top of the *cavea*. At the north and south ends were broad, sloping corridors leading down into the arena.

The most famous, and most influential, of all amphitheaters in the Roman world was the Flavian Amphitheater in Rome, better known today as the Colosseum (Gabucci 2001; Lancaster 2005b; Welch 2007). It was begun by Vespasian on the site of the drained lake of Nero's Domus Aurea and dedicated in 80 CE by Titus after his father's death. This was a grand and monumental building of four stories, 52 m high, standing on elliptical concrete foundations 12 m deep. It was an astonishing feat of planning and engineering on an unprecedented scale. With outer dimensions of 188 × 156 m and an arena measuring 80 × 54 m, many provincial amphitheaters could each fit into the arena alone! An estimated 100,000 m^3 of travertine was used for the facade with 300 tons of iron to clamp the blocks together. An amazingly short

construction time was made possible by the erection of a skeleton structure of travertine blocks that allowed many components to be worked on at the same time. A combination of materials was used: concrete, travertine, and tufa, which allowed architects to address the specific structural challenges inherent in its design (see Chapters 4 and 10). The vaulted substructures beneath the *cavea* comprised a series of passages, corridors, and staircases. The three outer arcades formed two outer, annular corridors 7 m high covered by concrete barrel vaults. One further ring corridor closer to the arena was constructed of brick-faced concrete with a veneer of marble; this particularly grand passageway was used by those accessing the ringside seats set aside for the elite. These annular passages were intersected by the radial passages that accommodated staircases, superbly organized for ease and control of access. Although the access system was used in both the Theaters of Marcellus and of Pompey in Rome, here it was perfected so that the building incorporated the functional demands of a segregated society into its fabric.

The design of the facade, broken up by arches framed by traditional orders (Tuscan, Ionic, and Corinthian), helped to relieve the visual heaviness of the building. A similar treatment had already been employed for the exteriors of the Theater of Marcellus (ded. 13 BCE) and the Stadium of Domitian (by 86 CE). The topmost level of the Colosseum facade, possibly not completed until the reign of Domitian, was a plain wall with windows alternating with Corinthian pilasters. It is at this level that the corbels for the awnings (*vela* or *velaria*) are preserved (see below). Beneath the now lost wooden floor of the arena is an elaborate system of subterranean passages and chambers where animals and gladiators were held in readiness and winched up to the arena level or let up along ramps (Figure 15.4) (Connolly 2003; Lancaster 2005b). These had a very simple arrangement in wood at the time of the inauguration, such that scholars have suggested that the arena could have been flooded for full-scale aquatic displays, as implied by the literary sources (Cass. Dio 66.25.2–4; Coleman 1993; Gabucci 2001; Connolly 2003; Dodge forthcoming). There is still much debate about the logistics of such an enterprise, made more difficult by the fact that the arena substructures (*hypogeum*) have been much refurbished and rebuilt over time. However, such substructures and their access points can be better appreciated in the amphitheaters at Capua and Pozzuoli in Campania. Here the arena floors of concrete are still in place, and the trap doors for hauling up animal cages can still be clearly seen (Golvin 1988).

As already noted, the largest of all Roman circuses was the Circus Maximus in Rome, situated in the valley between the Palatine and the Aventine Hills. For a long time the structure was insubstantial, resembling a Greek hippodrome, with seating either directly on the hill slopes or in the form of timber bleachers. There were no proper starting gates until 329 BCE (Livy 8.20.2). It was probably not until the early second century BCE that the circus started to



Figure 15.4 Colosseum, Rome. View of the arena showing the substructures. *Source*: Dodge.

acquire more elaborate facilities. At this time the central barrier took on a permanent form with turning posts (*metae*) at either end, each consisting of three conjoined markers. In 174 BCE, the first set of lap counters was provided in the form of seven eggs, one presumably lowered as each lap was completed (Livy 41.27.6). These were refurbished in the later first century BCE by Agrippa, who also provided a second set in the form of dolphins (Cass. Dio 49.43.2), apparently because mistakes were being made in counting the laps.

By the time of Augustus, the central barrier (the *euripus* or *spina*) was adorned with a number of additional statues and trophies. These have not survived, but their appearance and relative locations are supplied by literary and artistic evidence, most famously in the circus mosaics of Piazza Armerina in Sicily and of Barcelona (Humphrey 1986). Additional monuments are extant in the form of two Egyptian obelisks. The first, originally set up at Heliopolis by Ramses II in the thirteenth century BCE, was erected by Augustus in 10 BCE, and now stands in the Piazza del Popolo. This set a pattern for obelisks adorning circuses in Rome and around the Roman Empire – for example, at Tyre and Constantinople. In 357 CE, Constantius II followed Augustus by erecting a second obelisk, one of Tuthmosis II (fifteenth century BCE), which now stands in Piazza San Giovanni in Laterano (Sorek 2010). Although Julius



Figure 15.5 Circus, Lepcis Magna, second century CE. The tunnel to the amphitheater is in the foreground. *Source*: Dodge.

Caesar had carried out some modifications, it was not until Trajan that the whole Circus Maximus was given a monumental aspect with increased seating and massively extended supporting substructures of brick-faced concrete at the curved east end (*sphendone*). The circus also presented an external facade framed by decorative orders as in the Colosseum. By this time the overall length of the building was approximately 600 m (track length about 580 m) with a width of 150 m. Modern estimates of seating capacity vary from 150,000 to 350,000, with the latter quite credible for the Trajanic building. Along the northern side of the circus, on the slopes of the Palatine, Augustus built the *pulvinar*, a sort of imperial box (Nelis-Clément and Roddaz 2008).

One of the best-preserved and most thoroughly investigated circuses elsewhere in the Roman world is at Lepcis Magna (Figure 15.5). The structure lay outside the city near the shore, east of the harbor. To the south of the circus was an amphitheater built in 56 CE into an old quarry, and when the circus was completed in the mid-second century CE, the two buildings were connected by open passages and tunnels carved through the hillside. The arena of the circus was almost exactly 450 m in length, making it one of the longest after the Circus Maximus. The starting gates were placed along a shallow arc so that all the chariots had the same distance to travel to the near turning-post. They are uniquely well preserved and allow reconstruction of the opening mechanism by which the races were started (Humphrey 1986). The

unification of these two entertainment buildings in a single architectural complex is unparalleled in the Roman world.

Comparatively few monumental circuses have been identified in Greece and Asia Minor. At Anazarbus (Turkey) an unexcavated circus is still visible outside the city walls. It was 410 m long and 64 m wide and had a central barrier. This paucity of circuses may perhaps be explained by a continued preference for Greek style horse and chariot racing at a local level, which did not require the scale of facilities demanded by Roman chariot racing.

Further evidence for attention to spectator comfort is provided by the provision of awnings that could be pulled out over the audience, although how far they would have extended is unknown. In the Colosseum these were organized by a detachment of sailors from the fleet at Misenum (SHA *Comm.* 15.6); an estimated 1,000 men were required to operate the capstans and ropes that enabled the awnings to be unfurled. It has often been suggested for both the Colosseum and the imperial amphitheater at Capua that the stone bollards set into the pavement encircling the facades were part of the winch system. However, from a practical point of view this cannot have been the case, without tangling up completely the spectators as they entered and exited the building; the bollards must have been for some form of crowd control, as seen in many modern sports venues (Connolly 2003: 63–65; Dodge 2010). As well as the Colosseum, the imperial-period amphitheaters at Pula (Croatia), Nîmes and Arles (France), and the theaters at Orange (France) and Aspendus (Turkey) have extensive surviving evidence for awnings. There have been a number of modern attempts to reconstruct the *velaria* but all with little success (Montilla 1969).

3. Entertaining the Roman World: Hierarchy, Patronage, and Display

Roman spectacle venues came to reflect social hierarchies, and the design of the buildings themselves, with their multiple access points and staircases to different parts of the *cavea*, emphasized these. The Colosseum had 76 numbered public access points, and the entrance that a particular spectator used depended on where he or she was seated, just as in modern sports venues. From the second century BCE there was increasing segregation in the seating arrangements of theaters in Rome. The evidence is rather disparate and has to be gleaned from literary and epigraphic sources (Edmondson 2001; Fagan 2011: 97–120). Senators sat separately for the first time at Roman games in 194 BCE (Livy 34.54). In 67 BCE the first 14 rows of seats were reserved by law for senators and equestrians (Cic. *Att.* 2.19.3). This was renewed under Augustus (*lex Iulia theatralis*), and from this time men and women were

separated (Suet. *Aug.* 44.1; Dio 53.25.1; Rawson 1987; Schnurr 1992). It is clear that this emperor attempted to extend this to seating arrangements in the temporary wooden arenas constructed for gladiatorial display. He would not allow women to watch gladiators unless they sat at the very top of the seating, even though it had been customary in the past for men and women to sit alongside one another at such displays. Ovid (*Ars Am.* 1.163–76) could still recommend Augustan displays in the Forum Romanum as a good opportunity for young men to pick up young women. By the end of the first century CE, audiences in the Colosseum were seated in a hierarchical fashion, segregated by social rank and gender. This is confirmed by the divisions in the *cavea* and by extensive epigraphic evidence from the seats (for example, *CIL* 6.2059; 3207–3222; 32099–32151; 32152–32250; Edmondson 2001: 15–18; Orlandi 2004: 167–521). Interestingly, segregation by gender was not applied so rigidly in the circus, although senators and equestrians were given seats in reserved areas (Edmondson 2001: 18), and this is probably to be explained by the proportionately long *cavea* of the venue. Although there is a bias towards Rome in the ancient literature, increasing evidence suggests that there may have been reserved areas of special seating for certain groups in the provinces, but there is not yet enough to imply that a policy of strict segregation as in Rome was widespread (Edmondson 2001). While seating arrangements may have emphasized the social order, they also allowed challenges in the form of rival sets of fans; for example, in the amphitheaters at Lyon and Nîmes, *collegium* members sat together (Bomgardner 2000). There is similar evidence from the amphitheater in Pompeii, where, even though access was far less elaborate, there was still a system of separate routes to specific seating areas.

These buildings were not just bricks and mortar; over time they acquired significant political and socio-economic symbolism. The finance for the construction of spectacle buildings was provided by a variety of sources, but from the Late Republic such facilities, and the entertainments associated with them, were identified as appropriate vehicles for self-advancement by prominent figures. There are many examples of this phenomenon, and the financial input could vary. Well-placed inscriptions in entertainment venues, where the audience might spend a whole day, were guaranteed public attention, and the theater at Lepcis Magna provides a very good illustration (Sear 2006). Inscriptions in Latin and neo-Punic, placed over the main entrances, record Annobal Tapapius Rufus, a member of the local Punic elite, as being responsible in 1–2 CE for the original construction in his capacity as priest (*IRT* 321). His family was clearly determined to make its mark in this new Roman world. He was followed in 35–36 CE by a female relative, Suphinibal, who provided a shrine to Ceres at the top of the *cavea* (*IRT* 269). Another member of the same family, Idibal Tapapius, paid for the construction of the

temple dedicated to the imperial cult in the portico attached to the stage building (*IRT* 273). This epigraphic habit was continued into the mid-second century CE by Roman officials needing to communicate with the crowd at Lepcis.

A similar situation occurred in the amphitheater at Pompeii, where identical dedicatory inscriptions were placed over the entrances to the building (*CIL* 10.852; Welch 2007). Around the top of the podium wall separating the arena from the spectators, a series of inscriptions recorded individuals who had provided funds for the stone seating in that particular part of the *cavea* (*CIL* 10.853–855, 857); each one recorded that the benefactor provided these funds instead of games, implying that they were actually fulfilling their legal obligation to spend a certain amount of money during their year of office. Thus, public entertainment provided a focal point for the exercise of power at different levels.

As already observed in the amphitheater at Pompeii and the theater at Lepcis Magna, politics provided a particularly important context for entertainment venues in the Roman world, and the imperial cult was an important part of this, as at Tarragona. One of the earliest imperial amphitheaters outside Italy was constructed at Lyon (ancient Lugdunum), a colony from 43 BCE. It was built and dedicated in 19 CE by Gaius Iulius Rufus, chief priest of the three Gauls, as part of the large sanctuary of the three Gauls where the great altar of Rome and Augustus was established by Drusus in 12 BCE.

Epigraphic evidence from Aphrodisias and other sites in Asia Minor provide the eastern perspective (Roueché 1993). In the rivalry between the larger cities, theaters and the spectacles presented therein had always played an important role. And in the third century CE there was a substantial increase all over Asia Minor in the number and scale of civic festivals. Audiences would be drawn from a wide area, and delegations from other cities were honored with front-row seats at the spectacles. The presence of such delegations must have been one of the reasons behind the Aphrodisian decision to inscribe on the north *parodos* wall of the theater a selection of documents that record the city's special status (Roueché 1991).

The development of permanent, custom-built structures to accommodate spectators was a gradual process that mirrored not only elite ambitions, but also cultural and social change, first in the city of Rome and then across the entire Roman world. Venues associated with public entertainment were distinguished by their function and the activities that they housed, as much as by the building technology and range of materials employed in their construction. Some structures had a very long history and were adapted over time as entertainment requirements evolved. There was also wide geographical variation in the provision and form of these facilities reflecting the rich cultural makeup of the Roman Empire (see Chapter 20).

GUIDE TO FURTHER READING

Scholarship has tended to concentrate more on the displays than the buildings that accommodated them. However, there have been some important works published in the last few decades. Golvin (1988) still provides the most detailed account and catalog of amphitheaters in the Roman world and has particularly useful, comparative plans. Two publications in French (Domergue, Landes, and Pailler 1990; Golvin and Landes 1990) include, in particular, discussion of the Gallic hybrid theater-amphitheaters. The articles in the volume edited by Wilmott (2009) on amphitheaters and associated displays provide an important update on recent work on the subject. Dodge (2008; 2009) discusses recent advances in the knowledge of amphitheaters and circuses in the eastern part of the Roman Empire. On Roman circuses, Humphrey (1986) is still the standard work. Also relevant, with a number of articles on French material, is the edited volume by Landes (1990). The recent conference proceedings edited by Nelis-Clément and Roddaz (2008) have brought the subject up to date. Sear (2006) is the fundamental work on Roman theaters and includes an extensive catalog with plans and bibliography. *Stadia* in the Roman world have yet to receive any comprehensive treatment, but Welch's work on Aphrodisias and Athens (1998a; 1998b; 1999) as well as Dodge (2008; 2009) have made important contributions in this area.

CHAPTER SIXTEEN

Roman Imperial Baths and *Thermae*

Fikret K. Yegül

Introduction

A marble plaque in the Naples Archaeological Museum advertises a bathing establishment owned by M. Crassus Frugi (consul in 64 CE) in Pompeii as a "*thermae* of seawater" and a "*balneum* of fresh water" (*CIL* 10.1063 = *ILS* 5742; Yegül 1992: 43–44, n. 9, Figure 43; Fagan 1999: 62–63, n. 75; Pliny *HN* 31.5). We have no physical remains from these unusual baths, but they may have been located on the seashore on the west side of the River Sarno. The inscription is important on two accounts: it provides unequivocal evidence for the separate use of the terms *balneum* and *thermae* for what appears to be the same establishment, and it indicates that Frugi's baths was probably a hybrid type combining a regular *balneum* with a *thermae* of sea water (the latter probably indicating a communal pool let into the sea). Such dual establishments were probably quite popular along the sunny Campanian coast. The great thermo-mineral complex at Baiae, in the Bay of Naples, where clusters of baths were arranged on terraces hugging the slopes, included variations of such mixed land and sea facilities. Featured among the illustrations of the *De Balneis Puteolanis* (a thirteenth-century manuscript and its many recensions on ancient thermal baths in the bay), Balneum Tritoli represents a series of barrel vaulted chambers located at the edge of the sea cliff north of Baiae where thermal waters and sea waters mix. The illustration shows bathers in pools under cascading waterfalls while others approach the facilities from the sea in boats (Yegül 1992: 94–96; 1996: 152–155).

A Companion to Roman Architecture, First Edition. Edited by Roger B. Ulrich and Caroline K. Quenemoen.

1. *Thermae* and *Balneae*

The advertisement for Frugi's intriguing baths is one of many instances when the same bathing complex is referred to in an inscription as a *balneum* and a *thermae*. There were no rigid rules as to when a bath should be called a *balneum* and a *thermae*; the main difference between the two appears to have been one of size and ownership. *Thermae* often occupied a whole city block or more and often, as in Rome, stood free in the middle of an open, park-like precinct. They were ordinarily built by the state or the city, unhampered by budget considerations. *Balneae* (also *balnea* and *balineae*) were smaller establishments, privately owned (although they were "public" in the social sense), and fitted into city lots as best they could. Martial referred to some of these modest neighborhood baths as *balneae* by their name (e.g., Balneum Fortunati, Balneum Grylli, Balneum Lupi), but normally, unlike the great *thermae*, their names are not preserved (Mart. 1.59.3; 2.14.12; Yegül 1992: 43; 2010a: 48–49). A late second-century-CE inscription from Lanuvium illustrates the difference between *thermae* and *balneum* clearly: the city prospered so that it was able "to build *thermae* to replace its *balneae* which had grown old and gone out of use" (*CIL* 10.2101; Pliny *Ep.* 10.23). Although some of the privately owned *balneae*, such as that of Claudius Etruscus in Rome, were famous for their luxury, many dating from the republican period appear to have been dilapidated, dark, and gloomy – such as the baths used by Scipio Africanus, the conqueror of Carthage, which Seneca famously described with awe and admiration (Sen. *Ep.* 86; Mart. 6.42; Stat. *Silv.* 1.5; Yegül 1992: 31, 40, 381; 2010a: 23–25). The newly developing imperial *thermae* of the capital, such as the Thermae of Nero, offered a striking contrast to these aging establishments. The high vaults of major rooms allowed large windows with wood or metal grills to bring copious light and solar warmth. Since Roman window glass was not transparent enough to let in clear sunlight, much less offer views, some of the south- and southwest-facing windows for rooms intended for sunbathing (*heliocaminus*) appear to have been unglazed. The discovery of stone sockets for hinges of bath window openings across the Mediterranean, from Ostia to Bosra, indicate that utilizing large wooden or metal shutters to control heat and wind was common (Jordan and Perlin 1979: 583–594; Broise 1991: 61–78; Yegül 1992: 382–383, 469, n. 85). Characterized by their immense layouts, vast gardens, and magnificent interiors, *thermae* were free for all, gifts of an empire or an emperor to its people. As private enterprises *balneae* charged fees, but most were very affordable; still, there were some upper-end establishments that catered to a wealthy and elite group much like a club.

The popularity of public baths as a social and cultural institution in the Roman world is reflected in the large numbers of baths known from written sources and from actual remains, arguably the most common archaeological find in Roman cities and countryside, their numbers in the thousands and growing (Fagan 1999: 25–26; Manderscheid 1988b; 2004). By the end of the first century BCE, Rome had nearly 200 *balneae*. By the fourth century CE, two separate urban census documents (*Notitia Urbis Regionum*, ca. 334–357, and *Curiosum Urbis Romae Regionum*, 357–403) record their numbers at a staggering 856 *balneae* plus 10 or 11 named *thermae* (Yegül 1992: 30, n. 3; 2010a: 192). Several small baths, identified by inscriptions, are represented in the *Forma Urbis* of Rome (e.g., "*Bal Surae*" of frag. 21; Staccioli 1961: 94, 99–100; Yegül 1979: 112–113; 1992: 66–67, n. 24). Constantinople had eight *thermae* and 153 *balneae* (*Notitia Urbis Constantinopolitanae*; Yegül 1992: 324, n. 73). Even a modest veteran's colony such as Timgad in North Africa, with a population of 5,000–6,000, could support eight baths, a few of which, such as the North Baths, could count as *thermae*. Regional metropolises or provincial centers, such as Paris, Arles, Trier, Carthage, Ephesus, Sardis, and Antioch, built *thermae* almost rivaling those in Rome in size and luxury.

Unrivaled in size and opulence were the Thermae of Caracalla and the Thermae of Diocletian in Rome, each covering an area ca. 120,000 m^2 (30 acres), larger than a small city like Timgad. Olympiodorus, an early fifth-century source, mentioned that the Thermae of Diocletian could accommodate 3,000 bathers. We do not know if this figure included all bathers served in a day or at any given time. I believe the figure to be a low estimate. The daily cumulative number of bathers who passed through the gates of such a palace could easily be twice that amount. Thus, the 10 or 11 named *thermae* of Rome could have served some 50,000–60,000 bathers daily leaving the rest to the hundreds of small and medium-sized baths of the metropolis.

2. Popularity and Importance of Bathing

Why was bathing so important to Roman society? Bathing in the Roman world went far beyond the functional and hygienic exigencies of washing. It was a social activity integrated into the daily life serving the needs of recreation, leisure, or *otium* for the entire community. It was also a personal regeneration and a cultural habit rooted in the rhythm and structure of the day. By the end of the Republic, for the average Roman, spending the latter part of the afternoon in the public baths after a light lunch and siesta had become a tradition, a comforting part of urban life and national identity (Yegül 1992: 1–2; 2010a: 5–10).

There is no single or easy answer to the extraordinary success and popularity of bathing as a Roman communal habit. We must consider a variety of reasons. To start with, bathing was a physically and psychologically satisfying experience that invoked and awakened the senses with warm, clear water, shiny marble surfaces, a steamy atmosphere, the aroma of perfumed unguents, and the intimacy of massage and nudity. Thermal experience is a powerful stimulant for a sense of comfort and wellness. There are many references in ancient literature and epigraphy attesting to the baths' wondrous ability to deliver the bather from pain and worry, for the baths, along with natural springs, were considered the dwelling places of Nymphs and Graces (Dunbabin 1989: 6–46). Bathing was also a socially satisfying experience. The cozy warmth of baths and their apparent classless world of nudity encouraged intimacy. Public baths removed the individual from his shell and offered him a shared experience with a group, engaging him with others from different backgrounds, culture, and sex. Although there is good evidence, literary and archaeological, for the physical separation of baths into men's and women's sections during most of the Republic, mixed bathing appears to have been accepted, or tolerated, during the Empire. Still, for many conservative women who considered bathing nude or semi-nude in public lacking in virtue and decorum, the option of separation was possible since Roman baths and *thermae* were ordinarily open for women in the morning and men in the afternoon (*S.H.A. Hadr.*, 18.10; Ward 1992: 125–147; Yegül 2010a: 27–34).

Enhancing the sense of pleasure was the luxurious material world offered by most public baths, especially the *thermae*. Glowing descriptions of their interiors – fine colored marbles, intricate mosaics, stucco ornament, decorative statuary, all under high, light-filled vaults – are common. Martial recommended to a friend the previously mentioned Baths of Claudius Etruscus in Rome, notably extolling (and exaggerating) its virtues, rich and exotic marbles, mild waters, and bright interiors, and summing it up: "If you do not bathe in the warm waters of Etruscus, you will die unbathed, Oppianus!" (Yegül 2010a: 8). Among the hundreds of small baths and *thermae* of Rome and other large cities, there were no doubt many poorly designed, inadequately maintained, and lacking luxuries.

Bathing in cold or warm, fresh or salty, waters was considered to be good for health. A fairly detailed regimen of bathing coupled with exercise had been worked out by Greek and Roman doctors and health specialists. One of the most influential sources for therapeutic bathing was Asclepiades of Prusa, a Greek physician of the Hippocratic School who practiced in Rome at the end of the second century BCE, and recommended a strict regimen of diet, exercise, and baths (Phillips 1973: 76–84, 194–195; Lloyd 1978: 272–277; Yegül 1992: 352–355; Fagan 1999: 85–103). Among his followers were Celsus (first half of the first century BCE) and Galen (second half of the second

century CE), who emphasized curative, convalescent, and particularly the preventive benefits of bathing. Galen, who achieved success in the court of Marcus Aurelius, was explicit in describing a clear order of bathing based on the gradation of heat and humidity – in essence reflecting the general Roman bathing ritual moving from cold, to lukewarm, to hot and moist and back to hot – roughly coinciding with the *tepidarium, caldarium, laconicum/sudatorium*, and *frigidarium* of Roman baths (Celsus, *Med.*; Gal. passim). Following the best medical advice, bathing preceded some form of exercise undertaken in an open or colonnaded courtyard or *palaestra*, which Roman baths of all sizes and in all climates included. Such exercises, ultimately rooted in Greek gymnastic culture, were an inseparable part of the Roman bathing experience. They were easy activities, such as various popular ball games, intended for all ages as a means of keeping fit and healthy, not a professional and competitive training reserved for young athletes (Mart. 4.19, 7.32, 7.67, 12.82, 14.45–48; see also Harris 1972: 92–94; Yegül 2010a: 34–38, n. 47).

Therapeutic bathing was never more effective than taking a cure at some natural hot springs or thermal baths. While these centers were certainly sought out by multitudes seeking to maintain good health as well as to find a cure for disease and delivery from pain, they were mainly a place to enjoy one's free time in a pleasant spa setting. Some of the most popular resorts of the Roman world were centered in such thermal sources. Among them is the extensive thermal city surrounding the Bay of Baiae in the Gulf of Naples; the famed complex at Bath (Aquae Sulis), England, active as a social center even now; the recently discovered thermal city at Allianoi, near Pergamon; and the large thermal bath at the ancient hot springs at Hammat Gader in Palestine (now Israel) (Yegül 1992: 128–132; 2010a: 103–104). Whether in Italy or Rome's far flung provinces, these thermo-mineral establishments played an important role in influencing the early development of bath technology, especially in the creation of sub-floor heating systems culminating in the hypocaust and *praefurnium*.

3. The Nature and Planning of *Balnea* and *Thermae*

Developed mainly in Latium and Campania during the Late Republic, the row-type bath and its many local variations retained its popularity across the Roman world into Late Antiquity. The earliest examples of the type are the city baths in Fregellae (a Latin colony near Rome), dating from the late third century BCE, and the Stabian Baths in Pompeii of the mid-second century BCE (Yegül 1992: 57–66; 2010a: 51–59; Tsiolis 2006: 243–255; 2008: 133–143; Battaglini 2009: 345–363). Various applications of the row-type were popular in European provinces and Britain, the latter mainly baths connected to military establishments.



Figure 16.1 North Baths, East Baths, and West Baths, Cemenelum, plan. Main rooms include (F): *frigidarium*; (T) *tepidarium*, and (C) *caldarium*. *Source*: Yegül 1992: fig. 79.

Somewhere between the small, humble *balneae* and the grand *thermae* were the medium and large establishments of the imperial period, which are referred to in the ancient record, if at all, without terminological consistency (like *thermulae*). Medium-sized baths display endlessly creative variations of the functional type, represented by examples such as the Baths of Neptune and the Baths of the Swimmers (both in Ostia), establishments represented on the *Forma Urbis* of Rome, and others from North Africa, such as the baths of Galienus in Volubilis. The remarkable group of three baths – North, East, and West – at Cemenelum (Nice) employs a standard design in which four barrel-vaulted halls line up with close similarity (Figure 16.1). These baths, dated to the Severan period, constitute the most impressive bath ensemble in Gaul – an integrated bath and recreation zone on either side of the city's *decumanus.* In all three the *frigidarium*

(F on plan) is the dominant element, sturdily built in mortared rubble faced with small, squared blocks and brick bands, foreshadowing the boxy, basilical civic halls of the Late Empire (Yegül 1992: 66–74; 2010a: 60–61; see Chapter 6).

Romans appreciated the privileges of their materialistic culture and loved the dream world of public baths. Foremost among Roman institutions that created this dream world of entitlement and privilege were the *thermae*, especially the very large and luxurious ones built by members of the imperial family as a gift to the people, known in modern scholarship loosely as "imperial *thermae*." In addition to spaces devoted to bathing and exercise, they contained a great variety of secondary functions and facilities – lecture halls, libraries, cult shrines, porticoes, promenades and gardens, *palaestrae*, and both open and closed running tracks.

The main components of *thermae* were a vaulted bath block integrated to large, open areas, gardens, and *palaestrae*. The nature and architectural connection among these components varied; in many examples, but distinctively in Asia Minor (see below), the building block and open land/*palaestra* created a composition side by side. In the imperial *thermae* of the West, the bath block was typically surrounded (or partially surrounded) by gardens and secondary facilities, such as meeting rooms and libraries. Physical exercise complemented bathing as a part of an accepted program of health, mitigating traditional Roman skepticism about Greek athletics. Exercise, hygiene, and recreation were brought under the same proverbial roof with intellectual or quasi-intellectual pursuits. Decorated with trophies, inscriptions, and sculpture inside and outside, the *thermae* were among Rome's principal public institutions illustrating the social and political policies of the Empire and declaring its wealth and power.

The planning principles of the imperial type are based on its axial and symmetrical layout, the main axis created by the *frigidarium-tepidarium-caldarium* (Figure 16.2). The *frigidarium* typically established a cross-axis and expanded into side spaces where almost every architectural element was duplicated. In mature examples, such as the Thermae of Caracalla in Rome, the *frigidarium* is preceded on the main axis by an open-air *natatio* and flanked by enclosed or "internalized" courtyards, the *palaestrae*. The mosaic paving of the central area in the latter would have rendered the use of these "*palaestrae*" inconvenient or impossible for certain sports such as wrestling. One imagines that these spaces were intended for lighter exercises and games, but above all to give the hot and sweaty bathers a place to enjoy and cool in fresh air. The circulation pattern forms two identical rings converging on the single *caldarium* and moves back on the central axis through the *frigidarium* and *natatio*, returning to the changing rooms. The *caldarium*, which often projects out of the bath block, is flanked by a row of heated halls, served also by an exterior but underground row of *praefurnia* and boilers in line. As true for most imperial buildings, the great *thermae* appear to have been designed

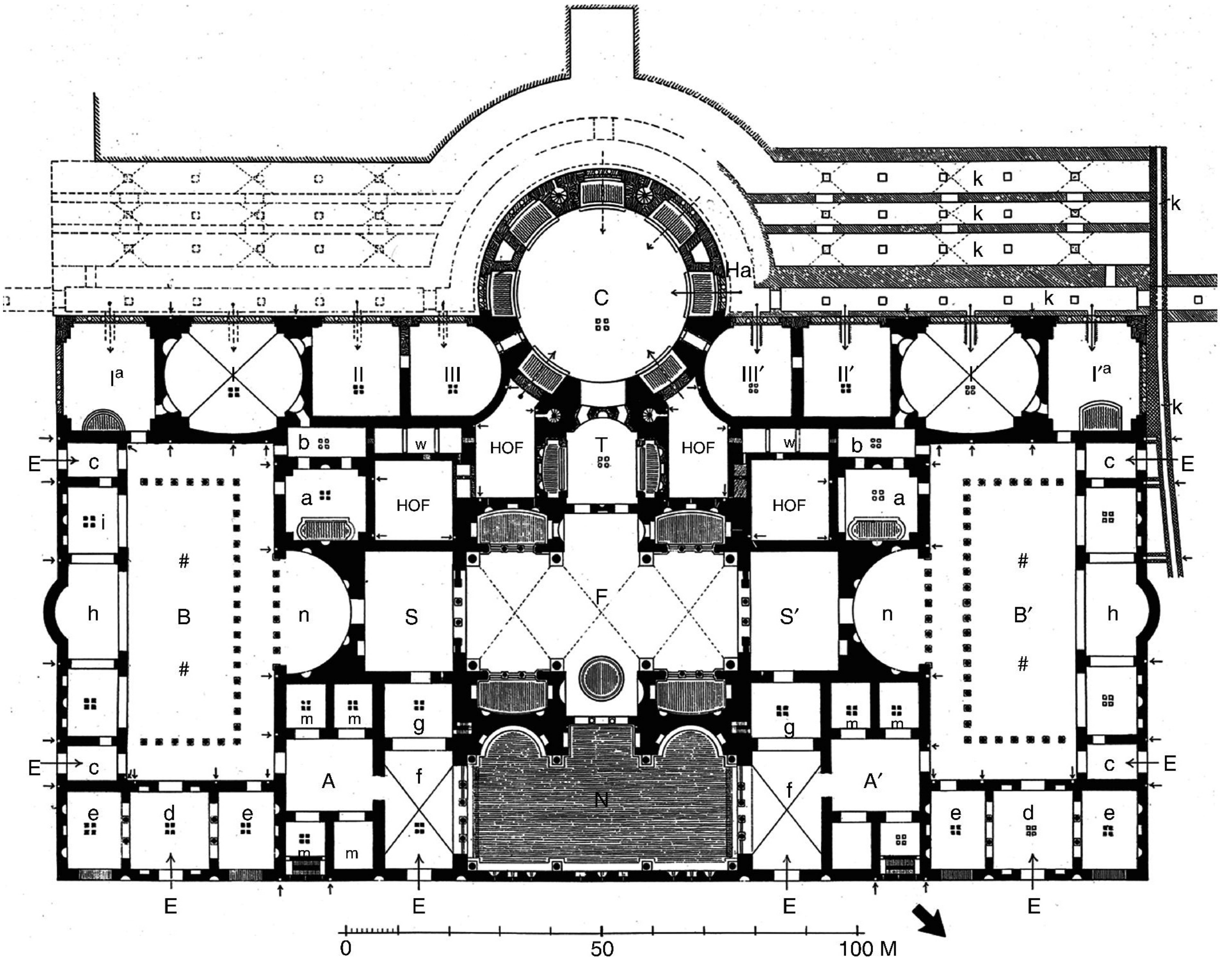


Figure 16.2 Thermae of Caracalla, Rome. Plan of the bath block. Main rooms include those of the primary axis, starting from the northeast (N) *natatio*; (F) *frigidarium*; (T) *tepidarium*; (C) *caldarium*; and flanking (B, B') *palaestrae*. *Source*: Yegül 1992: fig. 163.

following a set of mathematical and geometrical proportions based on the multiples of a few basic dimensions (DeLaine 1997: 45–68).

The axial and symmetrical planning of imperial *thermae* with their apparent wasteful duplication of functions and spaces may be baffling. Was this the natural outcome of rational and formal planning reflecting the Roman bathing routine or the echo of the Roman preference for order? Or, was there a deeper, symbolic meaning in the formal design of the great baths – the axiality and symmetry based on the hierarchy of constituent parts – a conceptual parallel to the cosmic order of the Empire's unity and reach across its vast domain? There were real and practical advantages to the duplication of spaces: it allowed the closing down of one of the sides of the building for cleaning and maintenance while the other side was kept in operation. During economic hardships or severe winters these gigantic establishments could be run at little more than half-cost by the shutting down of one side. Yet, the desire for richness and opulence must have been in itself a real need; symmetrical duplication was a form of disciplined excess that could have served well the Empire's message for power and authority (Yegül 1992: 128–132; 2010a: 103–104).

The imperial *thermae* of Rome and some from the provinces are among the most ambitious and sophisticated examples of large-scale planning and construction from classical antiquity. Their soaring, vaulted spaces advanced and endorsed the leading structural innovations of their day, especially the revolutionary concrete architecture of central Italy and its equivalents in the provinces. The dynamic and challenging forms of domes and cross-vaults were first tried in baths. Their enormous scale and complex scope not only offered the best opportunities for technological experiments but also helped to create a new architectural aesthetic inspired by the new system combining the Greek orders with Roman vaults (see Chapter 4). By accentuating the immense vertical heights and curved surfaces of walls with hard, horizontal cornices, by bridging vaulted expanses with rows of columns and tightly stretched, straight entablatures, the architecture of the great baths gave classicism a new dimension (Figure 16.3; see also Figure 16.5). Few building types in Roman architecture display more rationally conceived plans, more skillful integration of structure and space, or more richly orchestrated sequencing of volumes. The studied rhythm of elements large and small, broad and narrow, high and low; the careful contrast of dark and compressed passages interposed between brilliantly lit, lofty halls; the dramatic transition from vaulted interiors to open courtyards; the vast expanse of shimmering pools surrounded by marble and mosaic floors; the interspacing of moist and dry rooms; the changing of sound, the deep echo of voluminous halls followed by the hush and whisper of porticoes and arbors; the contrast of public courts and intimate, private corners – all attest to the sophistication of this all-embracing, experiential architectural achievement aimed at engaging the whole person and all senses.

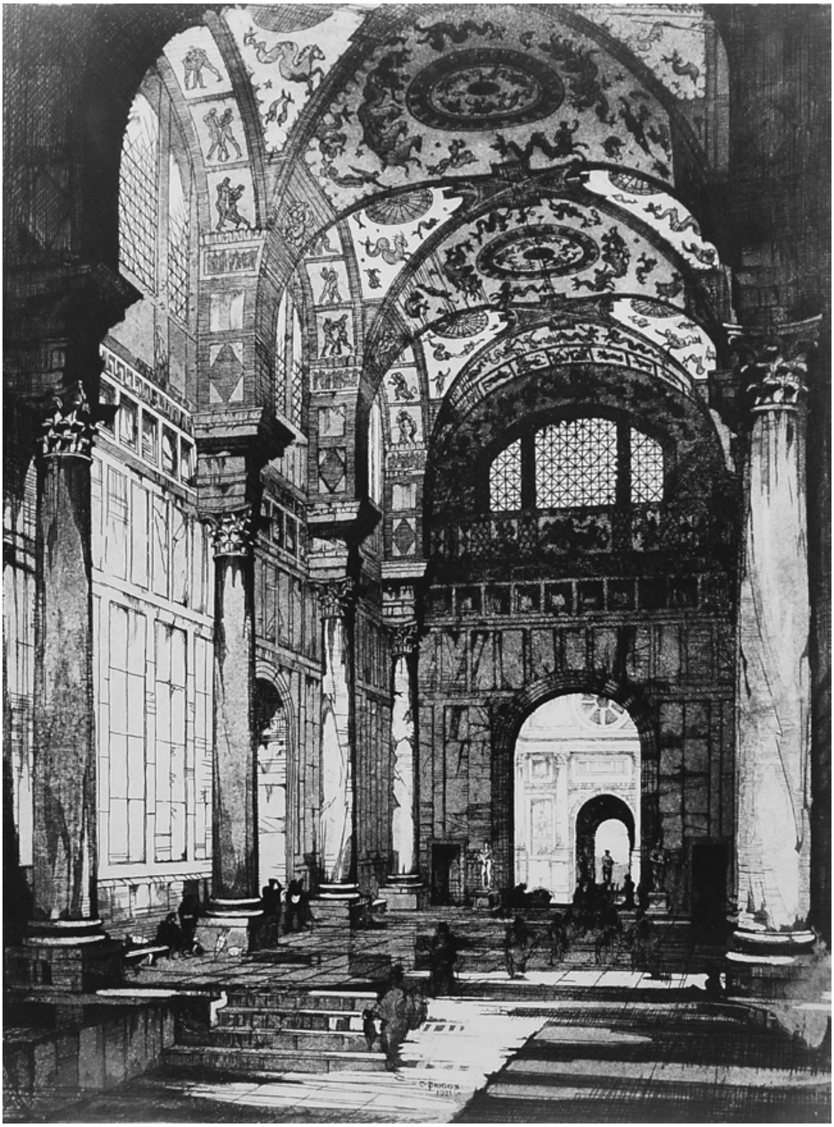


Figure 16.3 *Frigidarium* of the Hadrianic Baths, Lepcis Magna. Restored perspective. *Source*: Briggs, FAAR 1929; Yegül 1992: fig. 202.

4. Water Needs of *Thermae*

The water needs of the larger baths and *thermae* must have been prodigious. Larger baths and *thermae* could not have existed without advances in water supply systems, namely the creation of aqueducts. At their height, Rome's *thermae* were served by about a dozen aqueducts, which supplied the city

nearly one million cubic meters of water daily; public baths took priority. The water capacity of the hot and cold pools of the Thermae of Caracalla was calculated by H. Manderscheid to be about 2,000 m^3 (Manderscheid 1991: 49–60). This figure, which represents only the still water in the *natatio* and other pools, can be doubled given the constant daily use of running water for bathing, but more importantly for display in the numerous fountains, especially the great *nymphaea* of the *natatio*'s back wall with their multi-level cascades and waterfalls. One is aptly reminded of Seneca's famous lines about the lavish aquatic display of *thermae*: "Quantum aquarum per gradus cum fragore labentium" ("what masses of water flow with a crash from step to step"; Sen. *Ep.* 86.7; Manderscheid 1988a: 291–299; Yegül 1992: 390, n. 110). Caracalla's *thermae* were served by the Aqua Antoniniana, a special branch of the Aqua Marcia; other large baths and *thermae* as public institutions also enjoyed priority in receiving water by direct lines from aqueducts. The capacity of the reservoir serving the Thermae of Caracalla is estimated at 42,000 m^3, some 30 times the quantity necessary to fill its *natatio* and nearly one twenty-fourth of the daily water supply of Rome! It is important to point out that it was the desire to display water that consumed (or wasted) such prodigious quantities; ordinarily, small- and medium-sized baths, especially those located in dry regions, could function with a very little amount of water, usually supplied by wells and cisterns.

5. Administration and Services of *Thermae*

One could only guess the size and scope of the administrative and service staff to keep *thermae* functioning properly – supplying fuel, stoking furnaces, carting out ash and debris, and running the mechanism of heating, water supply, and drainage. Invisible to the patrons bathing above, every large bath boasted of a veritable underground city of services consisting of interconnected corridors, galleries, and rooms in which gangs of servants and slaves were toiling unseen. In the Thermae of Caracalla there are several parallel underground corridors along the southwest front of the building that served dozens of heating stations, *praefurnia*, and boilers (Figure 16.2). Runoff water was used to flush continuously the latrines as well as to run a mill to produce flour for bread and pretzels for the customers, since eating and drinking were customary pleasures in baths (Yegül 1992: 368–373, n. 59, 60). Supplying the 2,000–5,000 bathers daily in each *thermae* with fresh towels and linens must have required laundry service on an industrial scale. Washing was probably done underground but drying on numerous roof terraces (some of these terraces were also used for sunbathing). The servicing of *thermae* and other bathing establishments with their immense staff of servants, slaves, attendants,

masseurs, trainers, doctors, guards, technicians, engineers, and administrators, must have been one of the largest labor operations of the ancient world and perhaps the single most important labor contribution in large cities like Rome.

6. *Thermae* as Educational and Intellectual Institutions

For those who were more interested in mental athletics than physical competition, there were places for lectures, books, and artwork within the generous enclosures of *thermae*. A pair of rectangular halls flanking the so-called stadium at the back of the vast precinct girdling the Thermae of Caracalla has been interpreted as libraries. The southwest hall (40×20 m), investigated in detail, displays 32 deep rectangular niches in two stories, presumably for wooden book cabinets (*armaria*), and a large central apse intended for a statue, presumably Athena (Yegül 1992: 178–179, n. 128; 2010a: 123–126). Similar halls identified as appropriate library candidates are part of the peripheral elements of many imperial *thermae*. Traditionally, Roman libraries, like Roman centers of higher learning, were located within *fora* and temple precincts. Clearly, the setting provided by *thermae*, with their large open spaces, colonnaded peristyles, and shady walkways, would have been ideal for libraries. There is at least one good piece of evidence confirming this association. A fourth-century-CE source records that the libraries of the Forum of Trajan were moved to the Thermae of Diocletian, but returned to their original locations in the fifth century (*S.H.A. Probus* 2.1; Sid. Apoll. *Epist.* 9.16). We do not know where the Ulpian Libraries were housed in the *thermae*. The decision to incorporate libraries, auditoriums, and classrooms in the all-embracing program of Roman baths and *thermae* appears to have been induced by the regular inclusion of such functions in Greek gymnasia, an institution which keenly influenced the program of Roman baths if not their architecture.

7. High Costs of Building the *Thermae*

Considering that many *thermae* were free of charge or asked for a very small fee, it is obvious that the large costs of their operations were offset by public or private foundations and the considerable revenue brought in by shops and other franchises on their premises. While direct, imperial largess for the larger of these complexes must have played a part, euergetism, or individual benefaction, must have made their operations possible. The enormous cost of their construction and decoration also deserves a moment's attention. J. Delaine's study of the building costs of the Thermae of Caracalla shows an estimated

minimum of 12–14 million *kastrenses modii* was spent over a period of six or seven years (the *kastrensis modius*, or KM, is an approximate value unit based on standard corn or wheat, useful for judging relative costs). This is some 3–3.5 times the expense for the annual corn dole for Rome. But it is still dwarfed by the 45–150 million KM spent for the army – or, roughly some 10–14 *thermae* the size of that of Caracalla could have been built with the money Rome spent annually for its legions! Average annual interest yield for the largest private fortunes could bring some 3–4 KM, sufficient for the building and decoration of a fairly modest *thermae*. Such comparisons indicate that the building of major *thermae* was strictly a state undertaking outside the capacity of even the wealthiest individuals and a symbol of status for the imperial system (DeLaine 1997: 207–224; 1999a: 67–74).

8. *Thermae* of Rome

Such was the lead of Rome in the creation and development of *thermae* that we tend to think of the type, especially the imperial *thermae*, primarily as a Roman phenomenon. Considering that the earliest, the largest, and the most sophisticated examples in the largest numbers belong to Rome, the conception is not wholly wrong. Scholars have long debated the origins of imperial *thermae*, asking whether there was a sovereign imagination responsible for their inception. While the planning principles that characterize these complexes are no doubt the outcome of a long period of development as we see them established fully in the Thermae of Trajan, their formal traits and basic contents in the context of bath architecture had already started with the Thermae of Agrippa by the end of the Republic and possibly achieved a viable model with the Thermae of Nero.

8.1. Thermae of Agrippa and the Thermae of Nero

Represented by no more than half of a large brick rotunda (Arco della Ciambella), the Thermae of Agrippa, built by Augustus's trusted lieutenant and son-in-law, were located in the Campus Martius directly south of the Pantheon (the present rotunda is a Severan era rebuilding; see also Chapter 3). The plan is known from a fragment of the *Forma Urbis* (identified as [*the*] *ERMAE* [*Agrip*]*PAE*), numerous Renaissance drawings, and some minor excavations. Dio Cassius variably referred to the complex as a "gymnasium" built in 25 BCE, and later as a *balaneion*. Pliny called the establishment "*thermae*" (Dio 53.27, 54.29.4; Pliny *HN* 34.62, 35.26, 36.189; Mart. 3.20, 3.36). The layout, partially reconstructed, consists of a number of vaulted halls arranged about the principal east–west axis more or less symmetrically, dominated by a central, domed rotunda (23 m diameter) and a large hall with triple

projections, probably the *caldarium*. Towards the south the bath and its sports facilities were subsumed by Agrippa's extensive gardens and the artificial lake called the Stagnum and the Euripus, an open canal connected to the Tiber. By embracing the full scope and functions of a gymnasium and hot baths, the Thermae of Agrippa were a transitional institution between the two and established the agenda as well as the dominant architectural style for future *thermae* (DeLaine 1999a: 70; Yegül 1992: 133–137; 2010a: 305–307).

The Thermae of Nero were described pointedly as *thermas atque gymnasium* ("gymnasium baths") by Suetonius, whereas Martial unequivocally called them "*thermae*" in his famous quip: "What is so bad as Nero; what is so good as his *thermae*?" (Suet. *Nero* 12; Dio 62.21; Tac. *Ann.* 14.47; Mart. 7.34). Located a few hundred meters north of the Thermae of Agrippa, the plan we have represents an axial composition dominated by a large *frigidarium* with triple cross vaults, a projecting *caldarium*, and a pair of symmetrical square colonnaded courtyards, or *palaestrae*. But it dates from the Renaissance and may largely indicate the phase of extensive renovations in 226 CE under Alexander Severus.

8.2. Thermae of Trajan

The Thermae of Trajan occupied an area of roughly 240×320 m (ca. 20 acres); raised on a terrace, the complex partially covered Nero's Golden House. The first fully developed example of the imperial type, there is some dispute about its date and ownership. Dio Cassius clearly credits the design to Apollodorus of Damascus, Trajan's master architect, and visible remains are Trajanic, but a few early medieval sources, including St. Jerome's *Chronicle*, attribute the establishment to Domitian. It is possible that the project in its broad lines had been planned by Rabirius. The design is formally conceived with a huge outdoor swimming pool, a triple cross-vaulted *frigidarium*, and a strongly projecting *caldarium* defining the main axis, flanked by a pair of identical *palaestrae* integrated into the body of the bath block. The latter is surrounded on three sides by open land, gardens, and exercise grounds girdled by the peripheral wall with club rooms, lecture halls, libraries, and large semicircular *exedrae* on each side, dominated by one projecting on axis on the southwest side (diameter 120 m). It opened to the public in 109 CE, two days before the dedication of the Aqua Traiana, which supplied the baths (Dio 69.4.1; Paus. 5.12.6; Yegül 1992: 142–146).

8.3. Thermae of Caracalla and the Thermae of Diocletian

The Thermae of Caracalla, or Thermae Antoninianae, as the name is recorded in the *Mirabilis Urbis Romae*, ranked among the "Seven Wonders" of Rome in the fifth century (Brödner 1983: 220–229; Heinz 1983: 124–141; DeLaine

1985: 195–205; 1997; Yegül 1992: 146–162; 2010a: 110–118; Lombardi and Corazza 1995; see Chapter 5). After nearly a hundred years of hiatus in the imperial *thermae* series, these giant baths were started under Septimius Severus and completed under his son Caracalla (ca. 200–217 CE; Figure 16.2). The Thermae of Diocletian were built nearly a century after them (298–306 CE; see Chapter 6). These two provide us with the largest and most impressive examples of the imperial type in Rome and in the Roman world (Brödner 1983: 229–233; Heinz 1983: 112–117; Yegül 1992: 163–169; see also *CIL* 6.1130).

Both behemoths occupy an area of ca. 120,000 m^2, or 30 acres, and follow fairly closely the symmetrical and cross-axial layout established by the time of Apollodorus. Their designs, however, display a clearer articulation of spaces and a more fluid handling of composition. In the Thermae of Caracalla the short north–south axis of *natatio-frigidarium-tepidarium* is distinguished by a projecting round *caldarium*. Measuring 36 m in diameter and 44 m tall, it can be counted among the most daring of Roman domes. Constructed in brick-faced *opus caementicium* like the rest of the building, the drum rested in effect on eight massive piers and an 8-m-thick foundation ring of indeterminate depth. The piers were connected by two tiers of arches, the four of the upper tier along the exterior of the rotunda forming gigantic thermal windows – the southwest-facing openings lightening the load and admitting copious sunlight. Equally impressive in both *thermae* is the *frigidarium* divided in three cross-vaulted structural bays and expanding into six barrel-vaulted side chambers (pools). In the Thermae of Caracalla the cross vaults springing from colossal granite columns once rose to 33 m. The spatial effects of the better preserved great cross-vaulted *frigidarium* of the Thermae of Diocletian can still be experienced since it was converted by Michelangelo to the Church of Santa Maria degli Angeli. The vast expanse of the *natatio* was enveloped by high, marble-veneered walls articulated by multiple tiers of rich marble *aediculae*; deep niches behind the columnar rows housed statuary as water crashed down from different levels into the giant pools.

9. Display of Art in *Thermae*

The larger baths and *thermae* of Rome and the provinces were among the most impressive public venues for the display of artwork and sculpture (Manderscheid 1981; Marvin 1983: 347–384; Yegül 1992: 153–154, 322; 2010a: 128). Among the great variety of subjects and themes, statues of Aphrodite-Venus, Hercules, Asclepius, and his daughter Hygiea were typical and naturally appropriate for baths. Among the well-known pieces found on the premises of the Thermae of Caracalla are the Farnese Hercules and its pendant called the Weary Hercules, Achilles and Troilos, the Punishment of Dirce (the Farnese Bull),

and a colossal Athena. The thematic link between sports and *thermae* was underlined by the use of the victorious athlete and gladiator as an iconographic theme in the Thermae of Caracalla; portraits of famous boxers and gladiators decorate the rich mosaic paving of the internalized palaestrae. The luxurious Thermae of Constantine on the Quirinal Hill, the last in the great *thermae* series of Rome, yielded two over-life-size statues of Constantine and his son Constans, two famous bronzes of antiquity – the Boxer and the Hellenistic Ruler – and two river gods, Nile and Tiber (now set flanking the stairway of the Palazzo Senatorio on the Capitoline). Two colossal figures, probably the Dioscuri, now set up in the Piazza Quirinale, also came from the site. The love of displaying artwork in Rome's *thermae* was equally true in the *thermae* of New Rome – Constantinople. The Thermae of Zeuxippos, fully renovated by Constantine and decorated in costly marbles and a legendary collection of statuary, became the most conspicuous architectural showcase of his rule in the East (Bassett 1996: 491–506; Yegül 2008: 176–179).

10. *Thermae* in North Africa

As it is true for much of its public architecture, baths and the habit of bathing in public in North Africa followed the generally accepted models established in Rome and mainland Italy. Because of the relatively late urbanization of much of North Africa, the great majority of the baths, especially the imperial *thermae*, belong to the prosperous decades of the second century CE. Following the Hadrianic period, there was hardly a center which could not boast several small- and medium-sized baths, and not a few with larger *thermae*. To cite a textbook reference, Timgad, a successful veteran's colony founded in Numidia in 100 CE, had over a dozen small baths and one fine imperial *thermae*, the North Baths. Others, such as the Large Baths at Djemila and the Baths of Licinius at Dougga, with their tight and stepped arrangement of spaces and dynamic apsidal configurations, are creative variations of symmetrical schemes applied to steep, restricted sites. Equally creative and idiosyncratic are the Large South Baths of Timgad, placed diagonally to the city grid at a fork at the end of the *cardo*, whose great *exedra* and sweeping curves establish a remarkable exchange between public and private space and link the building to its urban context (Yegül 1992: 201–204, 206–213, 232–234; 2010a: 141–144).

10.1. Hadrianic Baths, Lepcis Magna

Dedicated to Hadrian in 127 (but renovated extensively under Septimius Severus), these baths represent the first application of the imperial type on African soil. The plan, which develops in three axially disposed units – a large

natatio, *frigidarium*, and a projecting, rectangular *caldarium* – was derived from the western *thermae*. Of particular interest is the great *frigidarium* roofed by triple cross vaults raised on eight monumental *cipollino* columns, echoing imperial models of Rome (Figure 16.3). However, the pair of pools extending the long axis of the *frigidarium*, each confined to its own spatial and structural unit, is a novelty preferred in North African *thermae* (Large East Baths, Mactar; Large Baths, Djemila; Legionary Baths, Lambaesis; Large West Thermae, Cherchel). The construction is in local limestone ashlar revetted in imported marble; major vaults are carried by ashlar walls, and piers are in mortared-rubble (local "concrete" with light pumice as aggregate). The great rectangular *palaestra* with apsidal ends is paved partially in stone, making it inconvenient for the more strenuous exercises. Positioned at the terminus of the new colonnaded avenue leading up from the new harbor, it must have been conceived more as a civic plaza than a sports ground (Bartoccini 1929; Reynolds and Ward-Perkins 1952: no. 361; Manderscheid 1981: 42–43, Figures 11, 12, pls. 37–43; Yegül 1992: 186–192; 2010a, 136–138).

10.2. Antonine Thermae, Carthage

The largest of the African *thermae*, with an overall area of nine acres (yet, less than one third of the area occupied by the Thermae of Diocletian), these imperial baths were placed spectacularly at the edge of the sea, directly on the extension of the *decumanus maximus* (see Chapter 5). The bath block was raised on a basement 6m high of massive concrete piers and vaults that housed all services. The main, short northwest–southeast axis, defined by *natatio-frigidarium-caldarium*, is dominated by the triple cross-vaulted *frigidarium* with side (aisle) pools replicating western models. The long axis, extending with double internalized *palaestrae*, provides an impressive vista 200m long. What is unique about the Thermae of Carthage is the row of heated halls forming a tight cluster of seven octagonal and hexagonal units that wrap around the *frigidarium* like a crown; the central projecting octagon, larger than the rest, is the *caldarium*. Influenced by western precedents but introducing new design forms, the Antonine Thermae in Carthage was clearly a prestige monument, possibly the product of the imperial administration in Rome applied with major local innovations (Lézine, Picard, and Picard 1956: 425–430; Lézine 1969; Yegül 1992: 192–196; 2010a: 138–140).

11. Bath-Gymnasia in Asia Minor

When the last king of Pergamon, Attalos III, handed over his kingdom, in 133 BCE, to the rolling power of Rome, Greek was spoken in most of the "fair cities" of Asia, Greek gods worshipped in the region's temples, Greek

philosophy taught in its gymnasia, and Greek athletics performed in its *palaestrae*. In sum, the rich world inherited by the new master was neither a parochial backwater (except in some, remote mountainous regions) it could ignore nor a cultural blank upon which it could impose its manner.

This is the background against which we must judge the bath-gymnasium, a unique architectural and institutional creation of Asia Minor during the imperial era. Simply put, the bath-gymnasium is a direct combination of a Greek gymnasium, rather its large, open-air, colonnaded *palaestra*, with the great vaulted halls of a Roman bath. As a civic institution, the bath-gymnasium combination served mixed educational, sportive, hygienic, and recreational needs of Anatolia's famously heterogeneous populations. Although the *palaestra* component of these complexes – replete with rooms for indoor exercise, oils, equipment storage, meetings, and lectures, and even shrines for the imperial cult – could serve the proper athletic training needs of the city's youth, it was mainly intended for the use of the patrons of the hot baths. Still, starting with the late Hellenistic period, the increasing porosity in the programs and functions between a bona fide Greek gymnasium and a Roman bath is mirrored in the willful interchange – and confusion – of terminology between a gymnasium (γυμνάσιον) and a bath/*balaneion* (βαλανείον). Most bath-gymnasia of Anatolia, clearly dominated by their massive vaulted architecture, were still referred to as "gymnasium" in the epigraphic and literary record (Tuchelt 1974: 147–169; Yegül 1992: 21–22, 250–251; 2010a: 154–158).

There are no hard and fast rules to distinguish a bath-gymnasium from a *thermae*. On the whole, bath-gymnasia were substantial establishments, some quite comparable to the great *thermae* of the West in size, scope, and function. As in the West, they were lavishly fitted out and beloved by the people, carefully choreographed vehicles of local or imperial propaganda. Some of the larger examples, with axial and symmetrical layouts, can be described as "imperial," but this does not mean that they closely followed western models or were sponsored by the imperial family. Although some carried dedicatory inscriptions to an emperor or an empress (always prefaced by a local deity), they were largely privately funded. This was probably true for the Baths of Faustina in Miletus, which is a large but asymmetrically planned complex positioned at a diagonal to the city's famous grid (von Gerkan, Krischen, and Wiegand 1928: 50–88; Kleiner 1968: 101–109; Yegül 1992: 291–294).

It is interesting to note that, with the exception of some major inland sites, such as Ankara with the colossal Caracallan bath-gymnasium or Aezane in Phyrigia, bathing establishments in the mountainous and remote regions of Caria, Lycia, Psidia, and Rough Cilicia – as seen at Arycanda, Tlos, Patara, Oeonanda, and Anemurium – are typically small- or medium-sized, planned and placed with close reference to their sites and the larger topography; they

eschew the formal planning characteristics of *thermae* (Yegül 1992: 291–304; 2010a: 173–178; Farrington 1987: 50–59; 1995).

11.1. Harbor Bath-Gymnasium, Ephesus

Overlooking the busy ancient harbor and the equally busy marble avenue (later called the Arkadiane), the Harbor Bath-Gymnasium incorporated a gigantic peristyle-gymnasium (240 × 220 m) dating from the Flavian period. The baths, including their separate *palaestrae*, were built sometime in the first half of the second century CE. The bath block consists of an outer (western) row of large, parallel heated halls covered by massive barrel vaults. The central, projecting *caldarium* is also barrel-vaulted, its 18.5-m span among the largest in Asia Minor. The unheated inner row displays a long, visually interconnected series of spaces, flanking both sides of the *frigidarium*. An oblong swimming pool with curved ends occupies almost the entire floor, typical of *frigidaria* of Asian bath-gymnasia. On the east, axially positioned, is the large, colonnaded *palaestra* with two major halls opening into it through screen colonnades. The northern hall, decorated with multi-story, colonnaded marble facades rising on a continuous podium for statuary, appears to have been a ceremonious space honoring the imperial family; it was dubbed as Kaisersaal by the early excavators (see below; Keil 1957: 69–75; Miltner 1958: 43–48; Yegül 1992: 272–273; 2010a: 160–161). The construction of massive ashlar piers connected by double- or triple-ring brick arches and surmounted by brick vaults (partially backfilled in mortared rubble) is characteristic construction in western Asia Minor (Fasolo 1962: 1–92, esp. 29–55; Maccanico 1963: 32–60, esp. 45–47; Yegül 1992: 266–270).

11.2. Vedius Bath-Gymnasium, Ephesus and Imperial Bath-Gymnasium, Sardis

These two establishments are so close in design that one must have served as a model for the other – or, they were the products of a central planning office, if such existed in Asia (Figure 16.4). With a total area of five acres, the Sardis complex is twice the size of the Ephesian one. Both were started in the early decades of the second century but took decades to finish. They represent a plan type where the bath block (on the west) and the *palaestra* (on the east) are placed on the same axis. Their structural system, connecting ashlar piers to double or triple bands of solid brick vaults, demonstrates clarity and sophistication (Figure 16.5). The *palaestrae*, unpaved, colonnaded courtyards with direct street entrances (hence they could be used independently of the baths), were surrounded by low-roofed secondary rooms; in Sardis the entire southern wing was redesigned as a very large synagogue by the end of the fourth

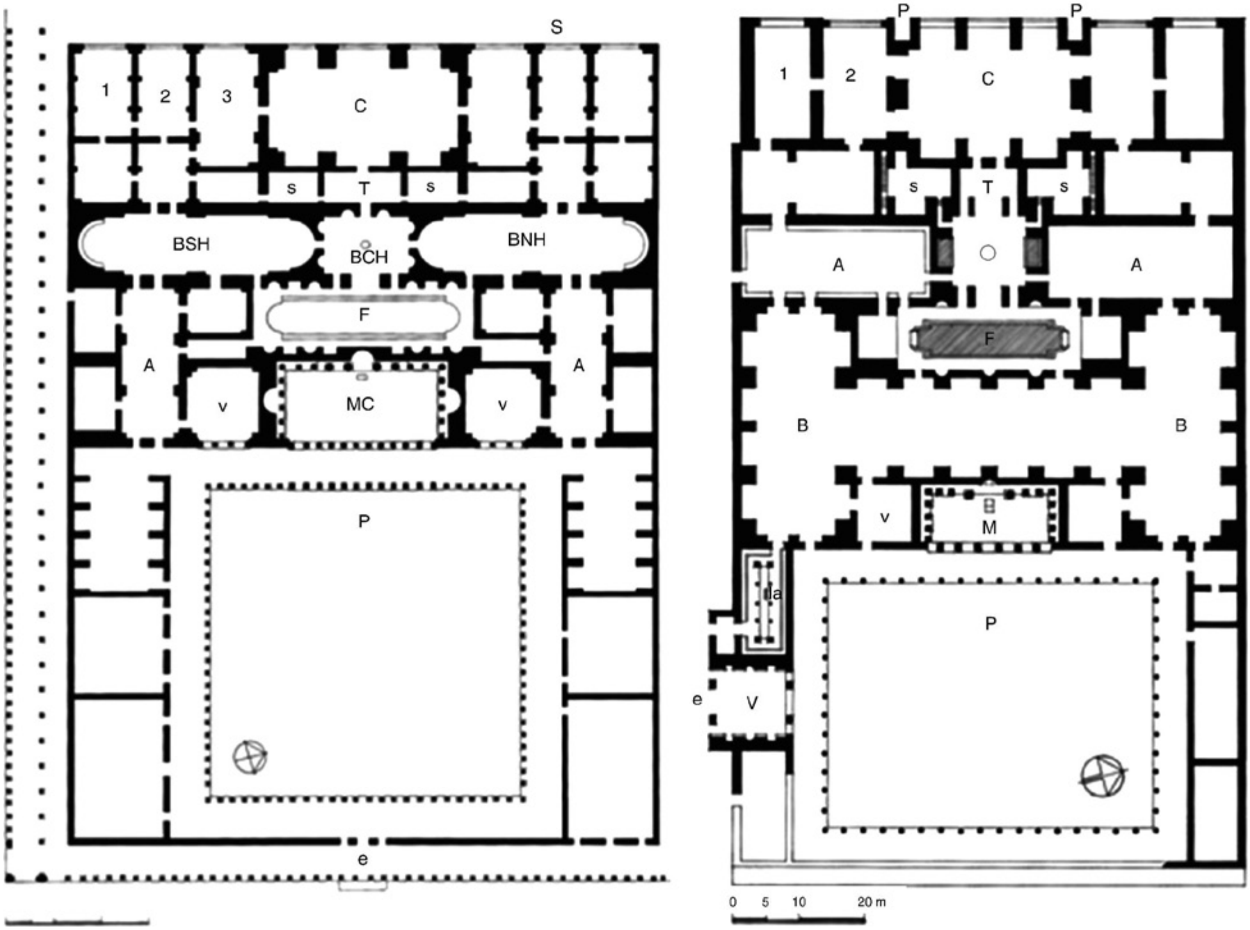


Figure 16.4 Imperial Bath-Gymnasium, Sardis (left); Vedius Bath-Gymnasium, Ephesus (right), plans. *Source*: Yegül 1992: figs. 378 and 379.

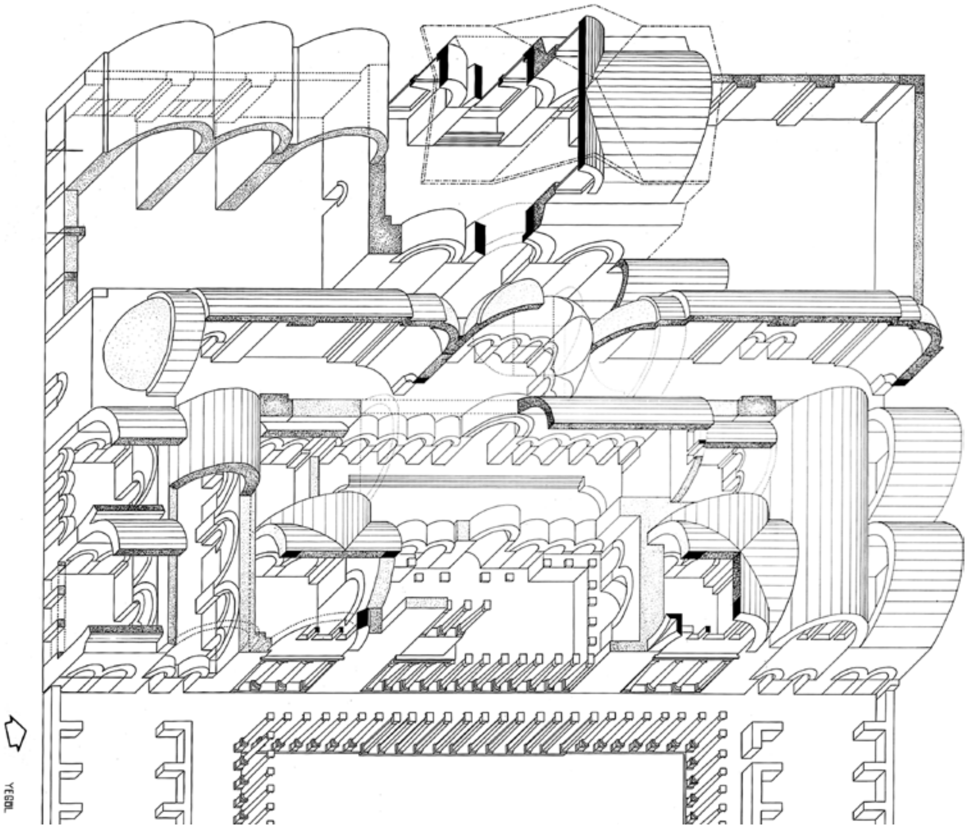


Figure 16.5 Imperial Bath-Gymnasium, Sardis. Restored axonometric study of the structural system. *Source*: Yegül 1986: fig. 11.

century. In both examples, the western heated row is composed of a series of barrel-vaulted halls with large arched windows on both sides of a monumental *caldarium*. Large, elongated halls with niches or alcoves, referred to as basilica *thermarum* (or "*ambulacra*"), occupy much of the unheated zone of the bath block. These impressive vaulted spaces must have served multiple functions, from *apodyteria* to social and athletic purposes.

In both examples, the most conspicuous element of the *palaestra* is a "marble hall" (such as the restored "Marble Court" in Sardis) directly on the main axis, opening into the *palaestra* through a colonnade (Figure 16.6). These special halls display a rich, decorative architecture of two-storied, colonnaded facades (*aediculae*), raised on continuous podiums and dominated by a wide, central apse. In Ephesus, an altar and the togated statue of the donor, P. Vedius Antoninus, was found in the apse while an architrave inscription dedicated the space to Artemis and the emperor Antoninus Pius. In Sardis, too, an architrave inscription honors the Sardian Artemis, Septimius Severus, his family, and the

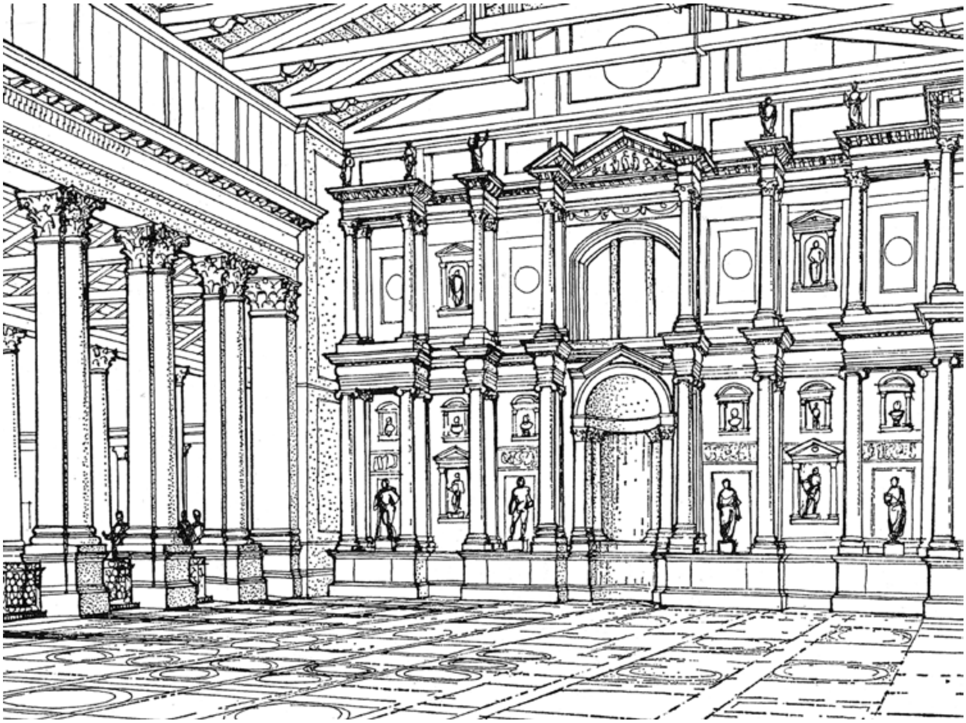


Figure 16.6 Marble Court, Imperial Bath-Gymnasium, Sardis. Restored perspective. *Source*: Yegül and De Long; Yegül 1986: fig. 92.

Senate and People of Rome. Typical of Asia Minor, these "marble halls" were probably honorific spaces for the observance of the imperial cult at populist and secular levels (Yegül 1982: 7–31; 1986: 45–66, 134–139; 1992: 284; 2010a: 164–167; 2010b: 550–552).

11.3. Baths and Thermae *of Constantinople*

The eight *thermae* listed in the *Notitia* appear to have been imperial establishments imitating those of Rome in luxury if not in size. These and the 153 smaller baths recorded are known almost entirely from literary records; physical evidence is scarce. Some of these baths were a part of the Great Palace of the Byzantine emperors, others part of aristocratic or ecumenical establishments. Adding all literary and archaeological information, we can come up with the names and rough locations of some 25–30 large or small baths in Constantinople. Many had become the subject of legends, their luxury remembered as a wonder of the past, their technology nothing short of magical. There were the Thermae of Achilles, known as the "oldest baths built by Byzas" (untrue, they are Hadrianic); the Severan Kaminia Thermae, which

were so large that “2,000 could bathe in it daily”; and the largest of the city’s baths, the Thermae of Constantine, sumptuously decorated with marbles and statuary and still in operation in the eighth century (Müller-Wiener 1977: 48–51; Mango 1981: 339–341; Berger 1982: 144–159; Stupperich 1982: 210–235; Yegül 1992: 324; 2008: 169–196; Kuban 1996).

The only *thermae* known at least partially through archaeology (1927–1929) are the Thermae of Zeuxippos, located between the Byzantine Hippodrome and the Chalke, the vestibule of the Great Palace, a stopping station on the emperor’s ceremonial return to his quarters and connected to it by a private passage. The core of these baths is Severan, but they were rebuilt and redecorated extensively under Constantine (see above) and finally under Justinian. Actual remains consist of several vaulted rooms and a great domed structure on the west, and a very large apsidal *exedra* facing a colonnade, probably a *palaestra*, on the east, recalling the typical arrangement of an asymmetrically designed bath-gymnasium (Malalas, 321.12–15; Mango 1959: 37–42; Bassett 1996: 491–506; 2004: 25–28, 50–58, catalog of art collection, 160–185).

12. Baths and *Thermae* in Antioch and Roman Syria

An artistic and cultural metropolis that maintained close ties with the western centers, Antioch was the natural hub for southwest Asia Minor and northern Syria. John Malalas, writing in the mid-sixth century CE, named a dozen or so public baths covering the period from Julius Caesar to Justinian, but none has been identified among the many baths found by the archaeological team that worked at Antioch and environs in the 1930s. Among the *thermae* known through literary records are the “Commodiana,” built by Commodus, ca. 190 CE, to accommodate his newly inaugurated “Olympic” games; the complex was located somewhere at the north end of the city’s famous colonnaded avenue. The Thermae of Diocletian were on the Orontes Island and possibly connected to the palace and the stadium (Libanius, *Libanii Opera* 11.245.231; Malalas, 306.22–307.2, 308.3–5; Berger 1982: 46–49, 52–53; Yegül 1992: 324–325; 2000: 146–151; 2010a: 188–189).

The most impressive *thermae* from Antioch known through excavations is the so-called “Bath C,” an opulent complex of mosaic and marble *opus sectile* floors dating probably in the late third century CE. The plan is quite distinctive and different from the typical western Anatolian *thermae*; 20 vertically congruent rooms are grouped symmetrically about a strong north–south axis. These spaces are dominated by two large, octagonal halls covered by domical vaults. The northern, larger octagon features a large central pool more

decorative than functional, and is approached from a generous colonnaded vestibule-porch; it must have been an entrance hall cum *frigidarium* combination. The smaller octagon at the end of the main axis, flanked by pairs of heated halls, was the *caldarium* (Stillwell 1934: 19–31; Levi 1947: 289–291; Yegül 2000: 146–151; 2010a: 189–192). The formally balanced composition and the isolated monumentality of individual spaces with low domes is a characteristically eastern usage as the plan bears a cogent relationship to the mid-second-century South Baths at Bosra and the late second-century West Baths at Gerasa. These low concrete domes represent an experiment in the East that would have been impossible to build without the use of the light volcanic material readily available in the region as aggregate – thus forming an interesting kinship across time and space with the dome of the Pantheon in Rome (see Chapter 4).

13. Baths and *Thermae* in Late Antique and Christian Worlds

These eastern *thermae* clearly show the changing trends of late antique bathing customs, such as the curtailing of the *palaestra* due to lack of interest in athletics and the gradual disappearance of communal pools not only to conserve water and cut operating costs, but also to serve the desire for modesty, hence smaller and multi-functional *frigidaria*, often serving also as an entrance and reception hall (Yegül 1992: 326–329; 2003: 55–72; 2010a: 181–198).

The larger baths and *thermae* in the East and the West suffered more during the social unrest and economic hardships of Late Antiquity than did the small neighborhood *balneae* with their modest needs and simple technology. Christian prejudice against public nudity and athletics, as well as tightening budgets, placed a certain curb on starting new establishments. But, in essence, the early Church never came up with a theologically based opposition against bathing. Bathing as a hygienic and medicinal activity was tolerated and small baths (which were also lucrative businesses) continued to flourish; some were even owned by churches and monasteries. Christian opposition against bathing was clearly based on bathing as a luxurious and indulgent activity challenging the Christian notion of spirituality achieved by negating the body and material pleasures. The great *thermae*, with their obvious and ostentatious display of luxury, were naturally more objectionable in the world of Christianity than humble *balneae* of functional design, dark interiors, and no-frills settings. Seneca would have approved of the sentiment that led to the passing of the great bathing palaces (Yegül 2010a: 199–206).

GUIDE TO FURTHER READING

A number of excellent books and long articles have been written on the subjects of Roman baths and bathing over the past 20 years. The range is broad, from technical aspects of construction and design to interest in the cultural history of the Roman bathing establishment. In addition to his many articles on the subject, Yegül's comprehensive overview of Roman baths, with discussion of both the social and architectural aspects of the establishments, remains the basic reference text (1992, reprinted 1995). A complementary study to this chapter can be found in the *Companion to the Archaeology of the Roman Republic* (Yegül 2013). Nielsen's two-volume encyclopedic approach (1990) offers excellent fact-based comparisons of many baths. The cultural aspects of bathing and how these were transformed in the Early Christian and Byzantine periods are further explored in a new book published by Yegül (2010a). Fagan (1999) is primarily concerned with the culture of the Roman bathing ritual. The logistics of constructing an imperial bath complex in terms of manpower and materials, with a focus on the Baths of Caracalla in Rome, has been studied by DeLaine (1997), who, with Johnston, has also edited the papers of an international conference focused on the social, planning, and construction aspects of Roman baths published in 1999. In addition to the references in this chapter, the reader may consult published bibliographies on bathing such as that by Manderscheid (2004).

CHAPTER SEVENTEEN

Courtyard Architecture in the *Insulae* of Ostia Antica

Roger B. Ulrich

Introduction

The excavations of Ostia by Vaglieri and Calza in the first half of the twentieth century transformed previous concepts of Roman urban architecture. Before these ambitious programs, our understanding of the Roman city in Italy was derived primarily from literary sources and the discoveries at Pompeii and Herculaneum. The literary record has supplied much information about conditions of the urban environment but lacks details of physical layout. Because of their complete destruction in 79 CE, neither Pompeii nor Herculaneum can offer a picture of Roman life under the period of the High Empire (Boëthius 1932: 84; Hermansen 1981: 17). Each has been influenced greatly by both indigenous traditions – those of the Oscans and the Samnites – and the tremendous impact of Greek colonists and the culture they brought with them to southern Italy, an effect that can be observed as far back as the eighth century BCE. The degree to which these Vesuvian cities should be seen as fully "Roman" exemplars is a question that continues to be debated (see Chapter 20).

The excavations of Ostia opened up a new window to Roman life of the High Empire, particularly for the period of the second century, when Trajan's new harbor project at nearby Portus was completed and Rome enjoyed an era of relative peace, prosperity, and prodigious resources. Situated at Rome's maritime doorstep, at the mouth of the Tiber, the architecture of Ostia has been regarded as providing a template for the coeval buildings of Rome that are

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now mostly lost, built over by later waves of construction that continued without cessation from Late Antique times through the nineteenth century (see summary in Bruun 2002).

What Ostia revealed was an urban landscape that differed quite dramatically from the picture offered by Pompeii and Herculaneum. Not everything was different: broad streets arranged in a rational fashion led the visitor towards the civic center of the town, the forum space, which itself was fringed with the kinds of buildings to be expected: a dominating Capitolium, a covered basilican hall, an ornate shrine to the imperial cult of Rome and Augustus, and shaded porticoes that bordered the open square (see Chapter 13 and Figure 13.1). Single-room shops, usually built with a mezzanine floor for the storage of goods and a simple apartment for the owner, lined the streets and fringed the ground floor of many public and commercial buildings, including baths and warehouses (Boëthius 1932: 89; Ulrich 1996).

Yet in addition to these characteristic urban features that are also found in Campania, Ostia revealed a novel type of structure, previously known primarily through literary references, that could be documented through archaeological investigations and described for the first time with some specificity: a large, multi-storied "block" of a building, constructed invariably of concrete faced with some combination of brick and stone (*opus testaceum* and *opus mixtum*) and enclosing many rooms similar in size and layout. Many such blocks were clearly conceived as a unitary project and built with an organized labor force. These hulking structures offered planar and uniform facades to the streets or open areas they faced, with regular rows of large exterior windows and, above the ground floor, a projecting balcony that protected the sidewalk below while emphasizing the horizontal coherence of the block. The rooftops may have been flat terraces (*solaria*). Many of these structures were built around an enclosed courtyard that provided light and air to interior rooms, supplementing the exterior windows facing the streets. The courtyard itself was often defined on the ground level, and sometimes on the upper floors, with a covered walkway, or portico, usually constructed as an arcade built of brick piers and connecting arches. Calza, whose early publications first brought attention to the importance of this type of building, described the layout as a "*cortile porticato.*"

The focus of this chapter will be to review the architectural forms of these large Ostian establishments. They are generally referred by both ancients and moderns as "*insulae*," a term used to describe a substantial, multi-storied apartment block that includes commercial, communal, and private residential spaces within a single structure (Calza 1916: 564). The first of these functions is represented most commonly by the line of street-level shops (*tabernae*) that define the street frontage of the building and for the most part do not provide access to the interior apartments. This means that the exterior *tabernae* and the rows of apartments built above them were isolated from those rooms

associated with the interior courtyard; thus the outer rooms of the *insula* are at once integrated with and separated from the visually unified block (Calza 1941: 4; for spatial organization see DeLaine 1999b). In some cases the entire ground floor is given over to commercial use, as will be seen. Communal spaces for the benefit of all tenants, or at least a significant subgroup, were also found on the ground floor, usually placed around the interior courtyard. These could include infrastructural elements, such as cisterns or fountains, but also common meeting places and occasionally shrines. Private spaces, in the form of apartments (*cenacula*), were also found at the ground level and especially in the upper stories. Several individual private apartments shared each floor, and individual rooms within a single apartment may have been rented separately (Frier 1977). The apartments in *insulae* are often characterized by a series of four or five rooms that are accessible from a larger central room or hall; this type of suite is sometimes referred to as a *medianum* apartment, after the term used to describe this central chamber (Hermansen 1970; Gering 1999; Ellis 2000: 74; see Chapter 18). In general, the Ostian *insulae* were spacious, well-lit, ventilated, and built of sturdy materials, a contrast to the poorly constructed, noisy firetraps we read about in Martial and Juvenal that characterized the *insulae* of the late republican and early imperial periods (Mart. 12.57; Juv. 3; Calza 1916: 577; Meiggs 1973: 249).

Some *insulae* built around an interior arcaded courtyard were hybrid structures with special-use functions dominating the ground floor and residential space piggy-backed above. These included guild halls and some of the great *horrea*, or storehouses, that held all sorts of dry goods, most famously grain, that arrived in the port town and there awaited transshipment to the capital.

My focus here on *insulae* built with interior arcaded courtyards means that others lacking this characteristic feature will not be considered in this chapter, and indeed there are many such examples. Depending on siting, layout, and overall size, many *insulae* were built on irregular plans, as rows or "strips" of apartments on narrow lots, or on a scale that did not utilize the interior courtyard. There are enough large *insulae* with interior courtyards, including those with *horrea*, market halls, and other special-purpose structures (such as the building used by Ostia's firefighters, the Caserma dei Vigili, II, V, 1–2), however, to make a convincing case that these can be presented as a distinct architectural type.

Certainly, over the last one hundred years scholars have treated the *insulae* of Ostia built around courtyards as a discrete architectural set and explored formal questions of origins, distribution, and development. In the wake of the early excavations of signature structures like the House of Diana (Caseggiato di Diana, I, III, 3–4, excavated 1914–1916) or the House of the Paintings (Casa dei Dipinti, I, IV, 4), Calza first wrote about the appearance of the Ostian *insulae* in 1916, illustrating his work with the evocative reconstructions

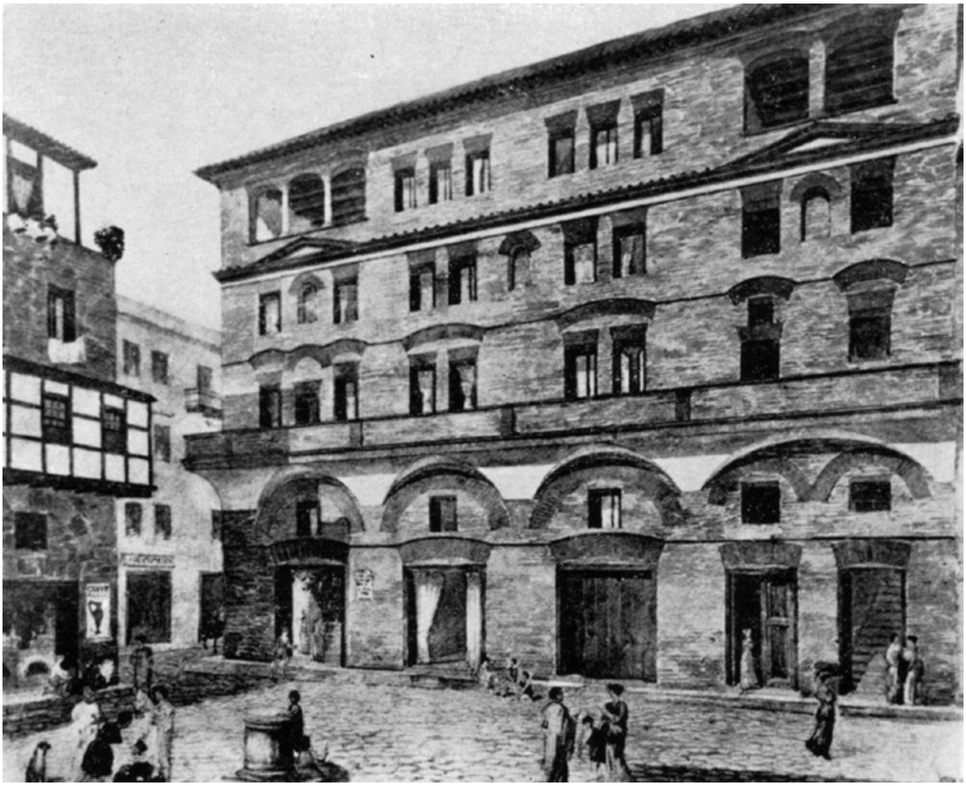


Figure 17.1 Reconstruction of the street facade of the Caseggiato di Diana, Ostia. *Source*: Gismondi in Calza 1923: fig. 6.

of Italo Gismondi (Figure 17.1). Subsequent excavations at Ostia over the 1920s, 1930s, and early 1940s generated new interest in the subject. Inevitably, the questions of origins of this distinctive architectural form spawned a series of articles in rapid succession by Boëthius (1932; 1934), Carrington (1933), Calza (1923; 1941), Harsh (1935), and Van Aken (1950). James Packer's *The Insulae of Imperial Ostia* (1971) offered the first and only comprehensive treatment of Ostia's multi-family structures, including an assessment and refinement of the systems of classification introduced by his predecessors. More recently, scholars have focused on individual *insulae* and particular problems of design, decoration, and organization, such as DeLaine's work on construction and labor force (2000a; 2003), her interest in spatial organization and status (1999b), Clarke's examination of the relationship between decoration and space (1991; see Chapter 18), and Laurence's work on urban context (see Chapter 21).

In the following section I shall present a description of representative examples of two structures that exhibit the characteristics of an *insula* that is organized

around a *cortile porticato*. This will be followed by sections that review respectively the architectural pedigrees of these structures, their chronological and spatial distribution in the Roman world, and some concluding comments about their legacies.

1. Representative Examples

As is true of any built environment, factors of siting and purpose affected the appearance and distribution of the *insulae* and *horrea* found at Ostia. The desire to build close to the banks of the Tiber, the heart of the town's economic *raison d'être*, and the natural boundaries of river and maritime shoreline inevitably resulted in the physical concentration of buildings. The general flatness of the coastal plain is also significant, as there was no need for the terracing of multi-storied buildings on hillsides that can be documented in nearby Rome. Finally, the fast pace and scale of building at Ostia in the second century (DeLaine 1996; 2000b) help to create a sense of uniformity that belies the city's long history of architectural development.

1.1. Caseggiato dei Triclini (Ostia I, XII, 1, original construction ca. 120 CE)

The *insula* known as the Caseggiato (or Casa) dei Triclini occupies a roughly rectangular site measuring 28.60 × 42.30 m (Figure 17.2). The entrances to the *insula* are built into the short north and south sides of the block; both have street frontage. The more prominent portal, paved with *opus spicatum*, is situated in the center of the short north wall that faces the *decumanus maximus*, just a few paces from the entrance to the civic forum to the west, and leads via a spacious vestibule to an open air courtyard 12 × 6.90 m, its perimeter walls parallel to those of the overall block of the structure.

The open courtyard itself is paved with white mosaic, its perimeter defined by a portico constructed of four heavy piers on each of the long sides and two smaller columns situated between the heavy corner piers (*in antis*) on the short sides. The portico once shaded a paved (*opus spicatum*) walkway that is broadest on the short side of the principal entrance (5.70 m wide); the two flanking corridors on the east and west sides of the courtyard measure 2.80 and 2.60 m respectively. On axis with the main entrance, at the far end of the courtyard, is a large room, once covered with a barrel vault, that is reminiscent of the reception room, or *tablinum*, of a Roman single-family *domus*, and was labeled as such ("*tablino*") in the early plans of Calza (Calza 1941: 3; see Chapter 18). Here the walls are preserved to nearly 5 m high. Like most of the *insula's* partition walls, construction is of panels of *opus reticulatum* framed



Figure 17.2 Axial view and plan of the Caseggiato dei Triclini, Ostia. The back wall is of *opus mixtum*. *Source*: Ulrich; inset plan after *Scavi di Ostia* I, map 8.

with brick (*opus mixtum*). A brick podium a little over 1 m in height, once revetted with marble, runs along walls on the south, east, and west; the floor here was paved in *opus sectile* of colored marbles. It is possible that the room was used to honor the imperial family through the placement of statues along the podium wall (perhaps a "Caesareum"; Calza 1941: 4; Packer 1971: 158). This axial focus on a larger and thus more prominent ground floor room is characteristic of a group of *insulae* built at Ostia with an interior courtyard (e.g., Casa di Diana; for full list see Van Aken 1950: 113) and is also found in a warehouse that follows this plan (see Horrea Epagathiana, below), luxury homes built around an interior courtyard (e.g., the Domus delle Muse, III, IX, 22; Figure 17.3 and Figure 18.3), and other buildings similarly conceived (e.g., the Caserma dei Vigili, II, V, 1, where statue bases dedicated to second- and third-century members of the imperial family are still visible in situ). Some have seen this feature as a kind of pretension that is paralleled in contemporary aristocratic housing (below).

Both long sides of the courtyard are bordered by a series of nearly square rooms that do not communicate with one another; each has its own doorway on to the central space. The five on the west side each include a doorway and a window; at

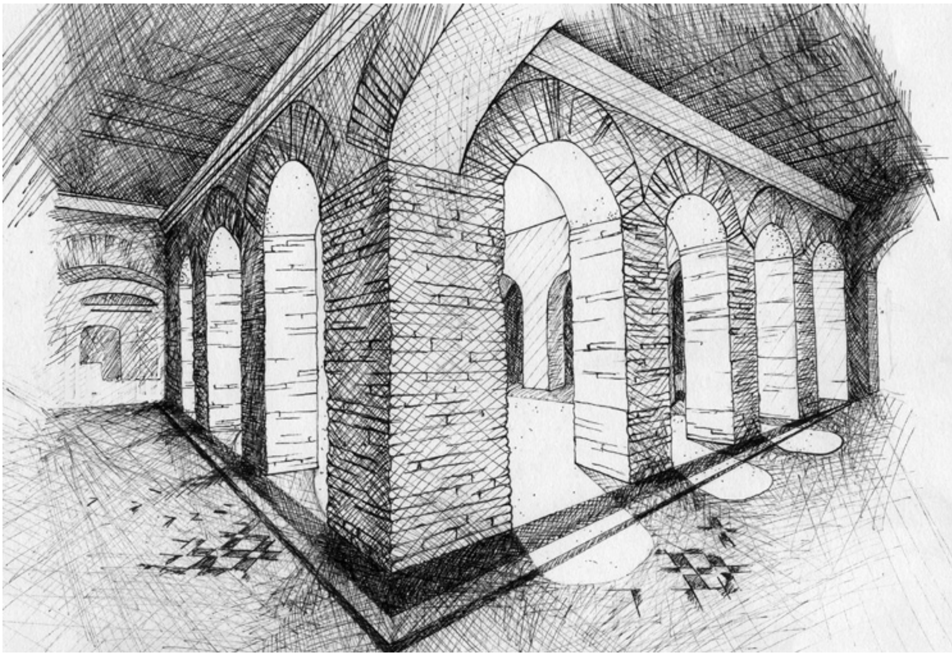


Figure 17.3 The arcaded courtyard in the House of the Muses, Ostia. *Source*: Dorothea Ulrich.

least two were paved with white mosaic. It has been suggested that these individual apartments may have indicated the use of the ground floor as a boarding house at one point (Kleberg 1957). Those along the east side are slightly larger, each entered by a central door. Low platforms lined the interior walls of at least two of these chambers, characteristic of an arrangement for dining couches and thus identified as *triclinia* (Packer 1971: 159). These communal dining rooms reflect the eventual use of the ground floor of this building as the seat of the guild. An inscription in situ on a statue base naming guild members and a dedication to Septimius Severus confirm that these spaces housed a vibrant and important guild headquarters: that of the builders at Ostia, the *fabri tignuarii* (CIL 14.4569; DeLaine 2003; Laurence and Newsome 2011: 225; see Chapter 10).

Rooms also line the short sides of the block, but none accesses the interior courtyard. These opened towards the street, their broad doorways characteristic of Ostia's ubiquitous *tabernae*, or shops, with mezzanine apartments overhead. The apartments on the upper floors of the *insula* were reached by stairs; one set is built into each side of the block. Stairwells on the short sides were accessed directly from the street, while those on the long sides opened onto the interior courtyard itself, each placed at an opposing corner.

It is difficult to know how many stories rose above the ground floor. Gismondi's early reconstruction of this structure and Packer's later analysis

suggested that there may have been as many as five or six stories containing perhaps 30 apartments (Gismondi in Calza 1941: 7, Figure 9; Packer 1971: 160). Many of the Ostian *insulae* may have been capable of supporting five stories, but the height restrictions placed upon buildings (60 Roman feet in Trajan's day) suggest that four stories with a shorter attic level floor may have been the norm (Meiggs 1973: 241). The form of the interior arcaded portico may have been reiterated for one or more of the upper floors.

1.2. Horrea Epagathiana (I, VIII, 3, 137–138 CE; Figure 17.4)

The versatility of the courtyard plan I have just described in a building used as a guild hall and a residential block is exemplified by consideration of one of Ostia's most elegant warehouses, the Horrea Epagathiana et Epaphroditiana. Excavations between 1922 and 1933 revealed a warehouse nearly square in plan, measuring ca. 41 × 36 m and part of a large urban block that housed two other enormous storage facilities, each organized around a central, rectangular courtyard (Becatti 1940). The principal entrance to the Horrea Epagathiana is from the west, its ornate doorway framed by a row of shops, independent of the warehouse block save for one on the southwest corner that grants access to a corridor along the south side of the building. The portal granting access to the interior is one of the most elegant discovered at Ostia, built of special bricks molded to represent flanking engaged columns carrying an entablature and pediment (for the entrance and its orientation to the city street system, see Stöger 2007: 357). A marble plaque identifies the building as "*horrea*" and the fact that it is named after its owners, Epagatus and Epaphroditus. Halfway along the entrance corridor the visitor would cross a threshold of travertine and enter the antechamber to the inner courtyard (Figure 17.4, b). Two small decorative wall niches were built into the sides of the chamber, matched by two others built into piers on the far side of the courtyard, on axis with the entrance. The entrance corridor, like many of the other ground-floor rooms around the courtyard, seems to have been cross-vaulted.

The interior courtyard itself is also nearly square (11.30 × 9.90 m), bordered on all four sides by brick piers that create a covered walkway around the space. As the north and east sides of the warehouse directly abut neighboring buildings and the south opens on to a narrow alley, the courtyard is an essential element for light and ventilation (Packer 1971: 67). On the entrance side (west) and the north and south sides, arches spring from the piers. A large room opposite the entrance corridor, on the far east side of the courtyard, is strikingly similar to the so-called *tablinum* situated on the main axis of the Caseggiato dei Triclini; its broad opening marked by a shallow arch that

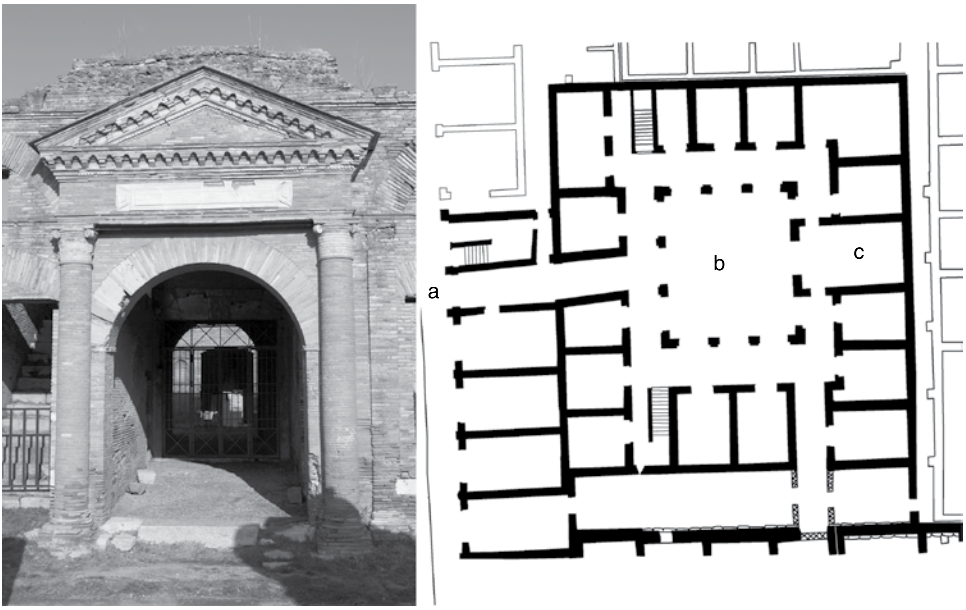


Figure 17.4 Horrea Epagathiana et Epaphroditiana, Ostia. *Source*: Ulrich after *Scavi di Ostia* I, map 2.

springs from two flanking piers (Figure 17.4, c). The floor of the open courtyard is covered with a black and white mosaic meander pattern, geometric in form. Mosaic panels with feline motifs mark the floor in front of the entrance vestibule and the "*tablinum*." A drain led water to a sewage line on the street. Cross-vaulted rectangular cells open on to the courtyard but do not communicate with one another; their robust construction hints at one or more upper stories. Stairwells on the north and south sides of the court grant access to the rooms above, which appear to have echoed the plan of the ground floor. The arcaded portico that framed the courtyard on the ground floor seems to have been duplicated on the second level. As on the ground floor, the corridor that ran around the courtyard was the only way, with few exceptions, to move from one room to its neighbor.

The blending of commercial and habitable space can be described at the Horrea Epagathiana in a way that is similar to that observed in other *insulae*. The *tabernae* that bordered the street on the west side of the complex included stairwells that presumably led to apartments located above the shops. The long corridor along the south side of the warehouse block supported a series of small rooms directly above that may have served as a boarding house or hotel (Packer 1971: 67). The storage of goods on the upper floors of the warehouse surrounding the central courtyard may not have been practical, and these spaces may well have accommodated additional private *cenacula*.

2. Distribution of *Insulae* by Time and Place

The discovery of the Ostian *insulae* such as those described here raises the question about their distribution in the Roman world and how that distribution varies over time. Packer has observed that most of the "dated multiple dwellings" at Ostia were built from the very end of the first century to the end of the second, a period of roughly one century (Packer 1971: 43). As far as Ostia is concerned, they seem to "all appear and disappear at the same time" (Packer 1971: 43). Ancient literary sources make mention of multi-storied apartment buildings in Rome from much earlier periods, including mention by Dionysius to such a structure in the fifth century BCE (10.32.5), by Livy to structures of the third century BCE (21.62.3; 39.14.2), and Vitruvius to buildings in the Late Republic (*De Arch.* 2.8.17). Plutarch claims that Crassus enriched himself during the middle of the first century BCE by buying up burning apartment houses and their neighboring structures and rebuilding them with a small army of slaves (Plut. *Crass. 2*). Extant physical remains in Rome have revealed nothing dating from the Republic similar in scale and appearance to the type of Ostian structure this chapter is focused upon, not necessarily a significant lacuna because of the poor building materials, destruction by fire, and rebuilding that certainly obliterated the physical traces of earlier *insulae*. In short, we know very little in terms of specifics about the early buildings these ancient sources reference, but it is safe to assume that most did not, at least at first, closely resemble structures like the Ostian Caseggiato dei Triclini or the Horrea Epagathiana, built of fired brick, concrete, and stone, often vaulted (at least in part), and conceived around interior courtyards. With the widespread introduction of fired brick and the method of building brick-faced concrete walls in the later first century BCE, the maturation of the multi-storied apartment house was surely underway (see also the following section). Vitruvius (*De Arch.* 2.8.17) writes of the multi-storied apartment houses built of fired brick and divided into separate floors by wooden decking covered by masonry (*contignatio*) that appeared during the first decades of Augustus's reign; these are features shared by virtually all of the Ostian *insulae* (for the method of construction, see Chapter 7 and Ulrich 1996). The fact that the heights of these brick structures were limited in Rome by imperial decree to 70 feet under Augustus (later reduced to 60 in Trajan's day) allows us to imagine facades parallel to the Ostian models of the High Empire (Meiggs 1973: 241). Similarities in appearance do not necessarily mean exact copies. DeLaine has shown how discrete groups of *insulae* even within Ostia exhibit variants that suggest the work of individual contractors and patrons (2002).

There is further physical evidence that contemporary apartment houses in Rome must have looked very similar to those excavated at Ostia. The best visible remains belong to a Hadrianic-period apartment house that was built into the slopes of the Capitoline Hill in Rome, known as the "Ara Coeli" *insula*. The multi-storied (five or six floors high) brick facade, including the characteristic exterior balconies documented from Ostia, did not, however, enclose an interior courtyard given the siting of the building against a hill (Gros and Torelli 2010: 202; Storey 2003: 9). Gatti's excavations along the Via Lata (the present-day Via del Corso) revealed the remains of two large *insulae* (60 × 45 m) also from the Hadrianic period (Gros and Torelli 2010: 202); the footprints of these suggest spacious interior courtyards. In addition, the facades of *insulae* that were incorporated into the fabric of Rome's third-century fortifications, the Aurelianic Wall, provide a *terminus ante quem* for their construction at some point before the third quarter of the third century.

Excavations in the housing districts of Roman cities throughout the Empire have revealed parallels to – but not exact copies of – the phenomenon of the multi-level *insula* organized around an interior courtyard. If one considers single-family structures (*domus*) built as a scaled-down version of this plan, a phenomenon that is also observable at Ostia (see Section 3), many additional provincial examples can be cited. In most cases, particularly those examples from the western lands of the Empire, these structures are coeval or later than the earliest examples we find in Ostia and Rome, so the question they answer is more about propagation than origin (for the latter, see Section 3). As might be expected, cities with high-density populations, particularly those built around ports or other points of commerce, and with evidence of rapid growth are likely places to document the presence of *insulae* built on the Ostian model (Gros and Torelli 2010: 371–375). Calza argued that most provincial towns that did not experience high population growth and a corresponding concentration of residents probably would not have developed the kind of high-rise apartments we find at Ostia (1941: 22; and below). High-density housing has been documented and remains quite well preserved in the two Roman-period (first-century-CE) *insulae* at Ephesus that include multiple residences laid out on a grid plan and organized around interior courtyards associated with individual apartments. The residential spaces, which include a mixture of housing for the elite and those of more modest means, are separated from the street by strips of *tabernae*; thus there are several points of correlation between the complexes at Ostia and those of this important eastern city. Whether the date of the Ephesian *insulae* is early enough to provide a convincing antecedent for the fully developed *insula* with a *cortile porticato* (see McKay 1975: 214) is a question that invites further consideration of the origins of this architectural type.

3. Notes on the Origin of the *Insula* with a *Cortile Porticato*

As previously mentioned, recent scholarly interest in the *insulae* of Ostia has focused more on aspects of what these buildings can tell us about Roman social structure and economy and less on their formal antecedents. Questions concerning "origins" are always thorny, and those centered on the Ostian *insulae* considered in this chapter have been particularly vexing because of the fact that these structures seem to appear as fully developed architectural types at the end of the first century. This perception is illusory; the forebears of the Ostian *insulae*, as noted in the previous section, no longer survive to facilitate the reconstruction of a formal genealogy. A brief review of the debate that followed the discovery of these buildings is, however, of use, not only for the question at hand – how did the *insulae* of Ostia come into being? – but also as a useful vehicle for review of some major currents of architectural development in Roman urban settings, particularly in the area of multi-unit housing and commercial space.

The traditional approach to the problem has been based on the idea that the Ostian *insula* built with an interior courtyard was a natural outgrowth of the single-family *domus* that characterized the housing of Pompeii and Herculaneum (for the *domus* type, see Chapter 18). Pompeii, it has been argued, was destroyed before population pressure and new building practices (brick-faced construction and vaulting as fully developed standardized techniques) manifest themselves in a new kind of building: the multi-family *insula*. It is hard to say, however, if the density of the population of Pompeii would have been sufficient to spawn the development of such *insulae* as we find at Ostia (Calza 1941: 22). Population density (and not necessarily overall population; Ostia was a "medium" sized town at ca. 20,000 inhabitants) is surely a factor in the development of the *insulae* of the high imperial period. In Pompeii the physical expansion of the *domus* was generally realized by horizontal development, whereas in Rome and Ostia there was a clear movement to build multi-storied structures, an observation first articulated nearly a century ago by Calza himself (1916: 542).

This evolutionary approach views the interior courtyard of the Ostian *insula* as a revamped feature of the atrium of the single-family *domus*. In 1933 Carrington argued that the republican-period atrium built with columns, either four at each corner of the *impluvium* (the "Tetrastyle" type) or the multi-columned "Corinthian" atrium, served as likely ancestors to the "*cortile porticato*" of Ostia (for comments on the development of the atrium itself, see Chapter 1). There are additional common features between *domus* and *insula* that can be cited: the narrow passageway (the *fauces* of the *domus*) flanked by

shops, the rows of rooms opening on to the atrium or courtyard that derive light and air from the central space, and the axial focus provided by the *tablinum* of the *domus* and the prominent chamber labeled for convenience as such in the Ostian *insulae* considered here.

The notion that the old atrium was adapted to serve as an interior courtyard was soon rejected (Boëthius 1932: 88; Calza 1941; Boyle 1972). The impluviate atrium was built initially for a quite specific purpose: to provide not only air and light but also water (via the *compluvium* and *impluvium*) for the inhabitants, and served as a reception room for the public (Figure 18.1; Wallace-Hadrill 1994: 83). It was not well suited to multi-storied structures. Multi-family *insulae* were in fact coeval with the single family *domus* as it is represented at sites like Pompeii and Herculaneum, so that the relationship between the two is better considered along parallel rather than evolutionary lines.

Another view, first raised by Boëthius, Harsh, and Van Aken, is that Ostian block architecture, organized around an open, porticoed court, has its roots in Hellenistic-period and Hellenized private and palatial architecture; the view challenges the assumption that the atrium-style *domus* in the Roman world was the predominant form for the single family dwelling (see also Chapter 20 and comments in DeLaine 1999b). Even within the "traditional" Italic layouts of Pompeii and Herculaneum, we see in Campania the influence of Hellenistic forms, most famously the colonnaded peristyle gardens appended to the backs of house plans (see Chapter 18). Indeed, these same garden peristyles have been proposed as direct influences on the development of buildings employing the *cortile porticato* that we see at Ostia (Harsh 1935). Such spaces increasingly became the focus of domestic life at Pompeii, with the most important rooms of the house opening directly on to the open garden. While the general influence of the Hellenistic porticoed courtyard on the later courtyard of the Ostian *insula* or *horrea* cannot be denied (cf. Boëthius 1934; Van Aken 1950: 115), whether the *porticus* was the specific feature being imitated by the Ostian builder is more problematic.

Close parallels can also be found in the colonnaded, double-storied, open-air, paved interior courtyards found in many houses from the late Hellenistic period at sites like Delos, where the best examples have been excavated, and where, by the second century BCE, there was a strong Roman presence (Figure 17.5). The plans of these houses reflect neither the scale nor the uniformity of their later Ostian counterparts, but the parallels are at least as striking, if not closer, to those that can be drawn using the old republican atrium house as a model. This kind of house plan was widely imitated and broadly adopted throughout the Mediterranean world well into the imperial period, including at the Roman colony set up for Trajan's veterans at Timgad (in Algeria) at the beginning of the second century or other North African

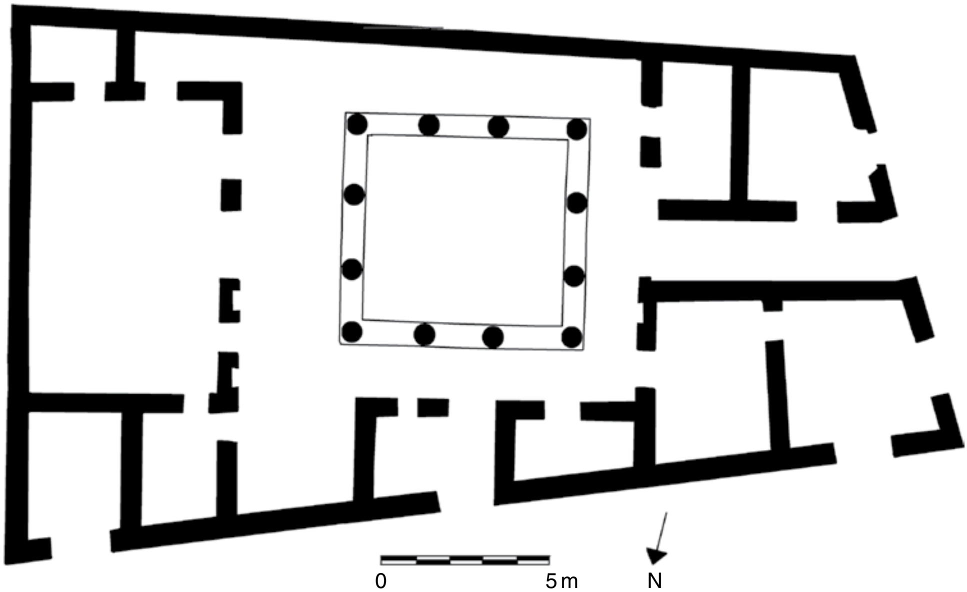


Figure 17.5 Plan of the House of the Trident, Delos, with column placement restored. *Source*: Ulrich after Chamonard 1922–1924: vol. 8, pl. 13.

examples of the "peristyle courtyard-house" from sites such as Althiburos, Bulla Regia, Thugga (Dougga), and Thuburbo Majus in Tunisia and Volubilis in Morocco (Harsh 1935: 46; Van Aken 1950: 127; Boëthius and Ward-Perkins 1970: 487). The close parallels that can be drawn between the porticoed Hellenistic courtyard and the Ostian cortile do not explain everything. There is a practical, rather humble element to the Ostian construction, based on relatively quick and economical concrete construction, that seems at odds with the "noble" character of the Hellenistic courtyard realized in stone – at least according to Calza (1941: 26). The traditional turned columns and stone entablatures of the Classical orders have yielded to the vocabulary of the imperial *opus latericium*: planar wall surfaces, unembellished door and window openings, and the curvilinear forms of barrel and cross vaults. Thus while we may look to Hellenistic precedent to understand the basic organization of space that characterizes these buildings, realization and final aspect can be understood in more "Roman terms."

It is during the second half of the first century CE, specifically those years encompassing the reigns of Nero, the Flavian emperors, and Trajan (54–117 CE), that a number of factors, both technological and social, coalesce to provide the conditions under which the Ostian *insulae* and *horrea* reach their mature forms (see Chapter 4). This period of just over 60 years also encompasses the last generation of buildings to be constructed at Pompeii and Herculaneum. Scholars including Boëthius (1932), Maiuri (1929), and Packer

(1971) were the first to examine the last building phases of those two cities to identify physical clues for building practices that can be understood as predictors of the Ostian phenomenon. They described features that come to be important accouterments of the *insulae* and *horrea* of the High Empire: houses built without traditional interior *atria* but including enclosed courtyards for light and air, rows of shops including stairwells that provide access to upper apartments independent of the shop spaces themselves, and external balconies that offer a unifying element to a block of architecture. At Herculaneum a well-known house referred to as the "Craticium House" (Casa a Graticcio, III, 13–5) includes a central light well and a communal cistern serving multiple apartments (Clarke 1991). It represents a multi-family structure that still lacks the "clarity" of planning we see at Ostia, thus less of a "missing link" and more of "a hybrid between the two types of houses – the atrium and the *insulae*" (Boëthius 1932: 92). Such examples from Pompeii and Herculaneum can serve as useful reminders that not all residential structures built around interior courtyards were of a grand scale or intended solely as multi-family "tenements."

At Ostia itself we find elegant single-family houses that are in effect scaled-down versions of the imposing *insulae*. A prime example of the former is the so-called House of the Muses at Ostia (Domus delle Muse, III, IX, 22; Figure 17.3 and Figure 18.3; ca. 128 CE), which features a dozen ground floor rooms decorated with fine geometric mosaics and elegant frescoes surrounding an arcaded portico that borders an open, paved courtyard (7.40 × 8 m; Clarke 1991 and Chapter 18). The east–west axis of the structure is organized around a tripartite and symmetrical arrangement of rooms on each side of the courtyard; the group on the west includes a formal reception room flanked by *alae*, similar to the so-called *tablinum* of the larger *insulae*. Stairways on the northwest and southeast sides of the house, the latter facing a street and the former from the courtyard of the Garden House complex, indicate the existence of upper apartments, some presumably independent of the ground floor dwelling. The close parallels between this private house and the larger Ostian *insulae* suggest that some large *insulae* may have duplicated the feature of the axial "*tablinum*" facing a courtyard to emulate the private housing of the elite (Packer 1971: 18). The neat arrangement of rooms arranged around an interior *quadriporticus* seen here has been described as a kind of aristocratic ideal for houses of the mature imperial period (Ellis 2000: 41) and even before, as is evident in the residence of Augustus on the Palatine Hill (Chapter 3 and Figure 3.3 and Figure 3.4; for provincial examples see Chapter 20.4).

The great fire of 64 CE that destroyed so much of Rome was a major event that precipitated new building practices that changed the appearance of the Capital, ushering in the kinds of materials and buildings that would subsequently be imitated elsewhere, perhaps none more closely than in neighboring

Ostia (MacDonald 1982a; see Chapter 4). Nero's post-conflagration architects and builders embraced the widespread use of fired brick and vaulting, the widening of streets, and the use of porticoes and balconies along the facades of Rome's *insulae*. Unfortunately none of the multi-family structures we hear of being built in the capital from this period survives, although later examples of brick *insulae* have been documented at Rome (see previous section). Yet there are analogous developments in Rome that can be seen during this general period that illustrate the kinds of spaces under consideration here. Parallels are not all from the category of domestic space. Vespasian's monumental Templum Pacis in the center of Rome (71–79 CE), for example, was built with an airy colonnaded court that preceded a suite of symmetrically arranged rooms with focus on a large central shrine. The plan in spirit anticipates the tightly organized ground plans of the Ostian *insulae* considered in this chapter, particularly those with an emphasis on an axially placed "*tablinum*" opposite a primary entrance. The organizational principle of multi-storied domestic space facing an interior courtyard is reflected in the planning and construction of the Flavian emperor Domitian's official residence on the Palatine (92 CE), the Domus Flavia/Augustana, itself a far cry from the more modest brick *insulae* of Rome and Ostia but nevertheless a type of residential structure more akin to the urban *insula* than to the old Italic *domus*, especially if both can be seen as branches of a new kind of architecture that reflects both the use of new materials such as concrete and the exigencies of compact, block planning.

Similarly, although the complex of Rome's Markets of Trajan (ded. 113 CE) does not include apartment housing along the model of the Ostian *insula per se*, it does show refinements in the organization of streets, shops, and overhanging balconies that distinguish so many of the buildings in the port city. The well-preserved Via Biberatica, as it is known today, is perhaps the best example of a street and multi-storied brick structure that can be seen at Rome or elsewhere from the period of the early second century, complete with rows of shops, projecting balconies springing from travertine corbels, and interspersed stairways granting access to upper floors.

As is true of other Roman architectural types, the mature form of the *insula* with a *cortile porticato*, with its orderly arrangement of rooms around a spacious central courtyard encompassed within a massive structural block, is not a wholesale product of Roman ingenuity. Courtyard architecture can be documented in the Mediterranean world back to prehistoric times. The peristyle courtyard surrounded by columns and a covered walkway is a common feature of Greek architecture throughout the Hellenistic period, enthusiastically borrowed by Roman builders over the course of the third and second centuries BCE. Nevertheless, the Roman development of the high-rise *insula* (itself capable of being built with several stories) is not without significant innovation

that can be described in terms of fenestration, facades that are functionally and spatially independent of the interior, common stairwells, innovative vaulting and arcades, decorative balconies, and the integration of commercial, domestic, and even sacred space (Calza 1916: 544–545; 1941: 23). Interior apartments bear little physical resemblance to the rooms of the Italic atrium *domus*, yet their spaces were similarly conceived to regulate movement, views, and enforce social hierarchies (DeLaine 1999b). Circumstances were ripe for the new forms: building technologies that favored fireproof materials could support multiple stories and could be constructed rapidly, most notably from *opus caementicium* faced with brick or reticulate work (for Ostia see DeLaine 1996). Rapid economic growth and the pressure on urban centers to accommodate more residents within limited geographical areas were also important factors, along with other infrastructural improvements, such as water systems, that increased the capacity for high-density housing.

That the solution for housing a multitude of individuals within a single multi-storied structure ended up being similar to that for storing sacks of grain or other commodities is ironic, and the parallels have been described as "unhappy resemblances" (McKay 1975: 99). This "warehousing" of human beings might be compared to the dreary high-rise housing projects of the modern period that have been regarded retrospectively as failures. Within their original context, however, the Ostian *insulae* and their commercial counterparts might be given a more sympathetic assessment. The melding of commercial and domestic space worked on both the micro and macro levels. For the former, shop-keepers lived in the mezzanine lofts built into their one-room *tabernae*; representing the latter are the shops, storerooms, or offices, including social spaces like guilds, built into or around the ground floors of the *insulae*. In some of the more remarkable *insulae*, shrines and private baths were embraced within the overall complex. Unlike the peripheral isolation of the modern housing project, the *insulae* of Ostia (and many of the *horrea* as well) were fully integrated into the urban fabric of the city, often steps away from the civic forum, large public bath buildings, and public shrines. They are, for better or for worse, the "*origine latine*" of the present-day Italian palazzo, as Calza himself proclaimed 90 years ago (1923).

GUIDE TO FURTHER READING

For a general overview of Ostia and its monuments, Meiggs (1973) is still valuable, as well as the Italian guidebook to the site in the Laterza series (Pavolini 1983). Most of the plans and descriptions of the buildings discussed here are still based upon the Italian reports of Calza, both in individual volumes of *Notizie degli Scavi* and on longer overview articles such as that published in 1941. Packer (1971) remains the

only encyclopedic study of multi-family housing at Ostia and includes discussion of *insulae* that differ from the "courtyard" model discussed here. Clarke's interest in the relationship between architecture and decoration yields discussion of several important houses at Ostia, including the House of the Muses examined in this chapter (1991). For articles that focus on economic aspects of apartment life in Ostia or with terminology connected with individual spaces within the apartments, see, for example, Hermansen (1970; 1981) and Frier (1977). Aspects of the building trade, logistics of building the *insulae*, and case studies different than those discussed here can be found in the many articles that have been published by DeLaine (1996; 1999b; 2000a; 2002; 2003).

CHAPTER EIGHTEEN

Domus/Single Family House

John R. Clarke

Introduction

In this chapter, I present two parallel chronological analyses of the *domus* (plural also *domus*), usually defined as the traditional patrician house. Sections 1 and 2 address the architecture of the *domus* from about 300 BCE to 350 CE, whereas Section 3 examines how decorative systems of wall painting and mosaic contributed to the spatial experience of the *domus*. My narrative favors the most plentiful evidence, that coming from excavations of the area buried by the eruption of Vesuvius in 79 CE, yet I supplement that analysis with several post-Pompeian examples from Ostia Antica. Given the fact that Vitruvius's text (*De Arch.* 6.3–5) has dominated scholarly discussions, I present his nomenclature as well as problems raised by new archaeological and philological investigations.

The *domus* is the focus of several current scholarly debates. Some of them concern the disparities between the Vitruvian model of the *domus* and the forms that have emerged from archaeological investigation; others question the survival of the spatial and decorative patterns from the Pompeian model of the *domus* to later dwellings of the mid-imperial and late-antique periods. One fruitful area for future scholarship will be deeper study of how these patterns move beyond Roman Italy, and how changes in the organization of Roman society might explain the new forms that appear in the third through the sixth centuries. At the least, I hope that this chapter will introduce the issues and stimulate new research on the *domus*.

A Companion to Roman Architecture, First Edition. Edited by Roger B. Ulrich and Caroline K. Quenemoen.

1. Form and Function in the Traditional *Domus* (ca. 300–150 BC)

Just as the temple, forum, and military camp took their characteristic forms from the kinds of activities that they framed, so did the *domus*. Unlike our modern house, conceived as a refuge for the nuclear family and located far from the workplace, the Roman *domus* was far from private: it was the locus of the owner's social, political, and business activities (Wallace-Hadrill 1988: 55–56). The word *familia* does not translate into its English derivative "family," for it signified a host of individuals attached to the owner in various relationships: slaves, former slaves (libertine), and freeborn persons who were dependent upon him through work or politics. During a typical day, the spaces of the *domus* had to accommodate household religious rituals, the visits of invited and uninvited individuals, dinner guests, and the work of the intimates of the household. For this reason, we can think of the *domus* in terms of spatial codes aimed at different users. The shape, location, size, lighting, and decoration of each space often cued the behavior of the person who entered or circulated through the *domus*.

Although this chapter considers the evidence primarily from the Italian peninsula, the forms of the *domus* eventually appear throughout the Empire, especially in the cities conquered by the Romans in the western Empire (Ellis 2000: 73–113). This chapter also presents the overview of the form and function of the Roman house that scholars and archaeologists have traditionally developed from Vitruvius, a Roman architect writing in the 20s BCE. It should be noted that in the past 20 years, scholars have questioned the Vitruvian model of the atrium house. Analysis of the whole of Latin literature has demonstrated that Vitruvius uses names for the rooms of the Roman house that appear quite rarely (*fauces, oecus, ala*); other names that appear frequently in the literature (*camera, conclave*) do not appear in Vitruvius at all. The Romans employed two classes of nomenclature, one to describe the furnishing or the activity that went on in a room (*triclinium, cenatio, cubiculum, bibliotheca*) and another to describe structure or form (*oecus, exedra, camera, conclave*) (Leach 1997: 50–72). Nevertheless, this chapter adheres to Vitruvius's vocabulary while acknowledging that his is the terminology of a specialist, and that the Romans who inhabited the spaces he describes probably referred to them using different names.

The other strain of scholarship questions the Vitruvian model from the point of view of material culture. Archaeological investigations have modified our notions of both the chronology of the atrium house as well as the universality of its form as interpreted by modern excavators wishing to find – and even to recreate – the form that Vitruvius describes (Wallace-Hadrill 1997:

240). Examination of the objects found in the excavation of houses at Pompeii and Herculaneum, where the eruption of 79 CE sealed the artifacts in place, has demonstrated the multi-functionality of the rooms of the *domus* (Berry 1997; Mols 1999: 115–131; Allison 2004).

Yet the value of Vitruvius is that his is an architect's view, and that view is both ideal and prescriptive. Even so, he provides no clear plan to accompany his descriptions. In the first two decades of the nineteenth century, archaeologists began to study the layout of the *domus* on the basis of excavations at Pompeii (Mazois 1824). In addition to the evidence for the earliest *domus* from Pompeii, dating to the third century BCE (the Houses of the Surgeon, of Pansa, and of Sallust), we now have further examples throughout the Italian peninsula (e.g., at Cosa, Fregellae, and Rome). Although some of this evidence seems to contradict Vitruvius's account (see below), together these excavated houses allow us to reconstruct the typical plan of the patrician dwelling (Figure 18.1). Like our modern row house or town house, the *domus* covers the entire lot line, its perimeter walls shared with adjacent houses. Its principal entry on the street front is a narrow, tunnel-like, ramping space centered on the axis of the house. Latin authors other than Vitruvius prefer the term *vestibulum* (vestibule) for this space, even though Vitruvius's term *fauces*, meaning "jaws," captures its spatial sensation. Shop spaces for rent often flank the *fauces*.

The *fauces* begin the articulation of a long axis running through the atrium, or central hall, to the *tablinum*, or principal reception space. Perhaps because the *fauces-atrium-tablinum* axis was such an invariant feature, Vitruvius and other ancient authors fail to mention it (Bek 1985: 140; Leach 1997: 55–57). Compelling architectural forms emphasize this axis. The *fauces* announce the axis and align a viewer's gaze along it. From a shallow space level with the sidewalk, the doors opened inward to create a viewing position for the visitor who would see the *tablinum* framed by the floor, wall, and ceiling of the *fauces* (Drerup 1959: 158–159).

A downward-sloping roof covered most of the space of the atrium, but the center of the roof was open. The *compluvium*, a square or rectangular opening in the center of the roof of the atrium, funneled rainwater from the roof into a catch basin directly beneath it, called the *impluvium*. The collected rainwater flowed into a cistern beneath the atrium floor. Vitruvius divides these so-called compluviate atria into two types (*De Arch.* 6.3.1–2). In the Tuscan atrium, beams reaching across the entire space from the atrium's perimeter walls supported the four sections of roof that slanted inward toward the *compluvium*. In Tetrastyle and Corinthian atria, columns arranged around the *impluvium* held up the roof.

Another model for the earliest atrium house, known from excavations at Cosa and Pompeii, dispenses with the *compluvium* because most of the atrium

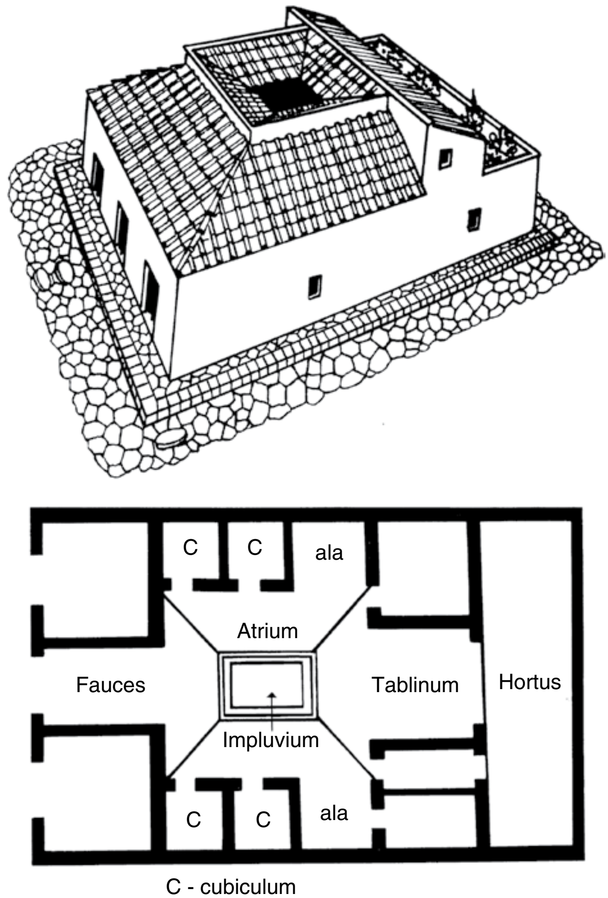


Figure 18.1 The patrician *domus* of the third century BCE reconstructed in plan and axonometric view. *Source*: Clarke.

is roofless. These early *domus* with the atrium open to the sky still collected rainwater through an *impluvium* or other types of cistern-heads located on the floor (Nappo 1997). Wallace-Hadrill believes that these roofless atria, with a covered walkway around the edges of the space, were the norm for the earliest houses rather than the exception, and that the compluviate atrium described by Vitruvius is an "invented" tradition that developed in the second century BCE (Wallace-Hadrill 1997: 238–240).

If in the traditional atrium the *impluvium* marks the axis on the ground, the *compluvium* emphasizes the axis in a vertical dimension, since it is the same size and shape as the *impluvium* and located directly over it. Rain falling from the *compluvium* into the *impluvium* would have made their reciprocal relationship visible, yet the *compluvium* is also the source of light for the atrium and the rooms around it. Light streaming in from the *compluvium*,

changing with the seasons and with the hours of the day, reveals the extent of the atrium's tall spaces. The *impluvium* both marks the visual axis and symbolizes the independence of the *domus* from the outside world, for the cistern it fed provided water for the family. Finally, the framing of the *tablinum* itself, often set off with columns, engaged piers (*antae*), or painted decorative elements, emphasized the opening of the *tablinum*. Behind the *tablinum* a window or door created a further axial focus by providing a view of the garden (*hortus*) beyond.

The ritual that caused the Romans to structure the *domus* around the *fauces-atrium-tablinum* axis was the *salutatio*, the daily visit by dependents to the *paterfamilias*, their patron (*patronus*). An important *paterfamilias* boasted a crowded atrium, an *atrium frequens*. The *paterfamilias*'s *famili*a included relatives who could not have the status of a *paterfamilias*, all those who worked for the *paterfamilias*, including slaves and freedmen (former slaves of the family), plus an assorted group of unattached persons who made the daily rounds of visits to assure their political and economic security.

Scholars have noted that the spatial configuration of the *domus*, by imposing a rigid axis of power between *paterfamilias* and client, relates to similar axial configurations in temples and their precincts (Clarke 1991: 6). On the one hand, a client first sees the focus of his visit, the *paterfamilias* standing in the *tablinum*. Although he stands on the visual axis as the goal of the "view-through," to reach him the client must veer from that axis in his walk around the *impluvium* (Hales 2003: 107–113). In like fashion, a suppliant approaching the goddess Fortuna Primigenia at Praeneste sees the goal, the round temple of Fortuna, on axis and from afar, but must follow a path that repeatedly loses and finds that axis on the way to the goal (Scully 1962: 210–212). On the other hand, the position of the *paterfamilias* in relation to the client resembles that of the Roman temple, axially positioned in a symmetrical space bounded by its enclosure walls. Just as the temple platform framed the cult image and priestly activities from the point of view of the faithful, so the *tablinum* defined the seat of power in the *domus*, with the *paterfamilias* controlling the axis of entry that manifested his power to his clients. Of course, at certain times there could be impediments to this "view-through," such as an over-crowded atrium or a *tablinum* closed with wooden shutters (Leach 1997: 54–58).

The atrium was the center of all activities of the house, not just the *salutatio*. Before and after business hours (from the second to the ninth hour of the day), the atrium housed other activities. Religious rituals, collectively called the *sacra privata*, often took place there. In some atria we find altars to the protective deities of the household (the *lares*), invariably

accompanied by an image of the *genius*, or protective deity representing the *paterfamilias*. At the *lararium*, the *paterfamilias*, accompanied by the entire *familia*, regularly prayed and offered sacrifice to the family *lares* (Orr 1978: 1557–1591; Fröhlich 1991: 24–48). Other rituals, including the coming-of-age ceremonies for a boy and a girl and rites associated with marriage, birth, and death, took place under the atrium's high roof (Harmon 1978: 1598). The atrium of an elite family, with its ancestral images and the images of *lares* and *genius* in the *lararium*, was as much a center of traditional family worship as it was a place to receive business and political clients.

Very ordinary activities also found space in the *domus*. Unlike the function-designated rooms of a modern house, the spaces of the *domus* changed function throughout the day. Recent studies of the objects found in excavations of the atrium and its dependencies indicate that they were all multi-purpose rooms. We would expect to find items for preparing, serving, and conserving food and drink. But many other types of articles were stored in these rooms, indicating that activities such as spinning and weaving, leatherworking, woodcarving, and the processing of agricultural goods took place there (Berry 1997: 183–195; Allison 2004).

The rooms usually designated by the term *cubiculum* (*-a*) surround the atrium and had a single doorway opening to the atrium, their only source of light and air. Casts of doors retrieved in some excavations typically reveal double-batten doors with hinges attached to wooden frames that surrounded the inner side of the rooms. Doors typically closed from the inside, suggesting that the occupant could shut him- or herself off from intruders. Especially in early houses, the floor level rises to mark off the space for the couch, and in some cases the wall is hollowed out to accommodate the couch's wooden or bronze frame. Often the *cubicula* along the right and left sides of the atrium have low ceilings to accommodate upper-story rooms, presumably for the slaves. Staircases or even put-holes for ladders allowed access to these relatively airless and dark quarters.

The *tablinum* was also a multi-use space. In the early *domus* it served as matrimonial chamber, furnished with the *lectus genialis* (literally the bed of the family procreator) and place for the family archive (*tabulae*). Wooden partitions, also called *tabulae*, could close off the *tablinum* from the atrium, transforming it into a dining room with a view of the garden. Extensions to the right and left of the back wall of the atrium, which Vitruvius calls the *alae* (wings), were of the same ceiling height as the atrium and principally served for the display of the masks of ancestors (*imagines maiorum*). The *alae* could have also served well for setting up dining couches for banquets, as did rooms often found to either side of the *tablinum*.

1.1. Evidence from Pompeii

Pompeii, where houses of all classes make up about two thirds of the built area of the city, provides excellent evidence for single family dwellings other than the *domus*. If the *domus* constituted the dwellings of the well-to-do landowners and wealthy merchants who ruled the political and religious life of the city, the smaller houses belonged to former slaves (*libertini*) and the freeborn working poor. The minimum size of the *domus* is about 450 m^2 and often, especially in the heyday of Pompeii's economy in the late second century, houses were twice that size. The modest houses were much smaller, from 120–350 m^2, and they employed very different architectural forms (de Vos and de Vos 1982: 333–334). In fact, it is Vitruvius himself who reminds us that not everyone needs the amenities of the *domus*: "Those of modest fortune have no need of magnificent vestibules, nor of *tablina* and the rest because it is they who must visit the others to place themselves at their service, not vice-versa" (*De Arch.* 6.5.1). At Pompeii, we find small houses, often built cheek-by-jowl along the secondary streets. Although the earliest of these had atria open to the sky with an *impluvium* or drain to collect water for the cistern, some lacked the *impluvium* completely. This type of atrium consists of a simple hall covered by a trussed-beam, gabled roof. Vitruvius calls this type of atrium "displuviate," since rainwater runs off the pitched roof. To take full advantage of the spaces under this roof, builders constructed wooden balconies around the sides of the atrium to give access to upper-story rooms.

The tenacious survival of the atrium in the face of increasing urban density at Pompeii, Herculaneum, and Ostia is all the more remarkable in that it is a relatively space-wasting configuration. Rarely, however, can one find all the canonical rooms of the *domus* in these "mini-atrium" houses (Jung 1984: 73–77). The abiding feature is the *fauces-tablinum* axis, but rooms tend to be arranged asymmetrically around it, suggesting that for this class not only the atrium, but also the rooms arranged around it, were multi-functional.

In these houses, placement of the humble spaces, such as kitchens, latrines, and slaves' quarters, is much less predictable than in the large houses and villas. We find that these areas, meant to be invisible, occur in the margins of the reception spaces, smaller in size, with low ceilings, little light, and poor decoration. In the House of the Prince of Naples, they take up the ill-lit right side and back of the atrium (Wallace-Hadrill 1988: 86).

At both Pompeii and Herculaneum, particularly after the disastrous earthquake of 62 CE, experimentation arrived at more rational but less traditional solutions that dispensed with the atrium entirely. The spaces occupied by tenants showed ingenious solutions to the requirements of circulation and spatial division (Pirson 1997). The architect of the House in Opus Craticium at Herculaneum fit two apartments and a shop with workrooms into the space

of a narrow atrium house. Here rituals of work blended with those of rest, dining, and entertainment because of the "railroad car" arrangement of many rooms. A courtyard serves the dual functions of light-well and stair-hall (Clarke 1991: 257–265).

For the poorest house owners, the shop and house were one. Whether at Pompeii, Ostia, or in Rome, these shop-dwellings were located along principal streets and often flanked by the houses of the wealthy or public buildings. Invariably they had a single large opening that could be closed with wooden shutters after business hours. Stairs or even wooden ladders gave access to an upper story, or in some cases to a mezzanine that served as the sleeping quarters for the inhabitants. Their size varies between 15 and 50 m^2.

2. Form and Function in the *Domus*-with-Peristyle (ca. 150 BC–350 CE)

With Rome's conquest of the Hellenistic East during the second century BCE came the desire to embellish the *domus* with great colonnaded porticoes, larger and more elaborate than the venerable *hortus*. Peristyles had formed the central courtyards for Hellenistic houses like those preserved at Delos, Pergamon, and Priene, but when transplanted to Roman Italy they became articulated gardens, located whenever possible on the *fauces-atrium-tablinum* axis in order to extend to the maximum the long view from the entryway (see also Chapters 2 and 19).

Now that the peristyle enclosed a garden, brightly lit by the sun, the atrium became a kind of formal anteroom for the reception of clients. New rooms with Greek names, arranged around the peristyle, served functions that did not include the *clientela*. According to Vitruvius, the part of the house open to the uninvited public included the vestibule, atrium, and *tablinum*. The dining rooms, baths, and bedrooms were only for invited guests (Vitr. *De Arch.* 6.5). Andrew Wallace-Hadrill has demonstrated how the hierarchy of spaces, from public to private, reflects Roman social structure of the Late Republic and Early Empire (Wallace-Hadrill 1988: 43–97). Whereas the *tablinum* had doubled as a dining room, now there was a special room, called a *triclinium*, designed to hold the three couches (*klinai*) for Greek-style dining. Vitruvius specifies the proportions of this U-shaped space: it should be twice as long as it is wide (*De Arch.* 6.3.8). His discussion of the *oecus*, a reception space similar in shape to the *triclinium*, includes an important reference to the view *out* from positions on the couches, suggesting that these rooms also could be used for dining and that the view from these rooms was a planned one (*De Arch.* 6.3.10). Suites of rooms with special purposes could be built off the peristyle. There could be a private bath suite, with a room for each stage

of the bathing process: a dressing room (*apodyterium*), hot room (*caldarium*), warm room (*tepidarium*), and a cold room (*frigidarium*), often with a plunge bath or small pool. Intimate rooms for daytime reading and lounging (*cubicula diurna*) often had their place along the peristyle, as did open semicircular or rectangular apses (*exedrae*) (Dickmann 1999). For private meetings the *paterfamilias* might make use of an elegant *cubiculum* (Leach 1997: 68–70; Riggsby 1997: 36–56), developed in grander houses and villas into a suite. The only limit on the luxury of the peristyle was the owner's purse. These spaces housed new rituals of leisure made possible not only by new wealth but also by the architects and artists who emigrated from the devastated East to find work in Italy.

The expansion of the *domus* with the addition of the peristyle raises the problem of housing the slaves. They were ubiquitous members of the wealthy household, arranged in a hierarchy of intimacy with the family members. Most intimate were the family slaves, such as the *cubicularii* (who slept on mattresses at the bedroom door), followed by secretaries, nurses, clerks, doormen, and cooks. Often they functioned like doors and partitions, forming living buffers between the visitors and the members of the household (Wallace-Hadrill 1988: 78–81). Yet in the best residences their quarters, unimportant to the prestige of the owner, had to be concealed. A second atrium with servants' quarters, or upper-story rooms in either the atrium or peristyle, removed the slaves from sight when their services were not required. Some city houses, like that of the Menander, made the slave quarters, kitchen, and latrine "disappear" by placing these spaces on a lower level, which included stables and rustic storage areas (Figure 18.2, nos. 29–34 on plan). But often even large houses offer no clear solution for the quartering of slaves (George 1997: 17–23).

In his discussion of rooms off the peristyle, Vitruvius urges the architect to locate rooms to achieve the best possible conditions of light and temperature in relation to the times of the day and the seasons. Baths and winter dining rooms should be located on the west side of the peristyle; bedroom suites, libraries, and dining rooms used in the spring and autumn should be on the east, and summer *triclinia* should face north (*De Arch.* 6.4.11).

In testing the dicta of Vitruvius against the evidence of peristyle houses excavated in Roman Italy, several contradictions arise. Whereas Vitruvius urges that the peristyle be placed transverse to the atrium, a survey of existing houses shows that most peristyles extend the *fauces-atrium-tablinum* axis. The House of the Menander, in particular, has received much attention from scholars because both its plan and the view from the *fauces* evidence the care taken by the architect to maintain at least a visual axis in the process of adding the peristyle to the pre-existing *domus.* Because the parcels of land acquired by the owner for the addition of the peristyle were irregular, a regular plan was impossible. There was no way to center the peristyle on the axis of the *domus.*

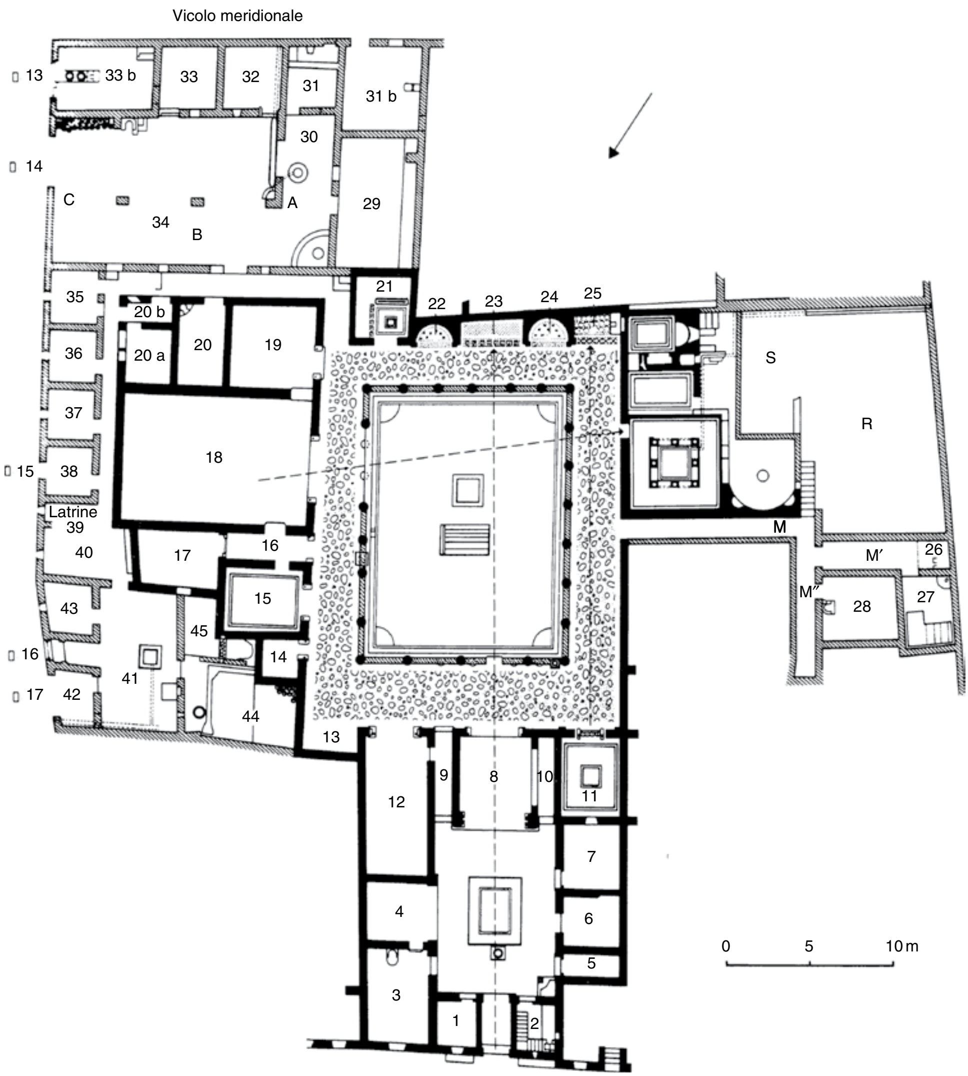


Figure 18.2 Pompeii, House of the Menander (I, 10, 1), plan. *Source*: Clarke.

Working around this problem, the architect still managed to extend the axial view from the *fauces*, through the *tablinum*, to the extreme south end of the peristyle. To achieve this goal, he widened the spaces between the columns of the peristyle just past the *tablinum* to frame the axis, and terminated it with an architectural frame defined by *exedra* 23.

Heinrich Drerup uses the House of the Menander as the prime exemplar of his concept of the "view-through" (*Durchblick*) in his seminal article on pictorial space and real space in Roman architecture (1959: 145–174). A series of framing devices located on the visual axis constructs the view through the

House of the Menander: the widened space between the columns on the axis becomes a kind of window when seen in combination with the low walls (*plutei*) between the columns and the architrave they carry.

If the visual axis from the *fauces* through the peristyle is a constant, other axes often cross it to emphasize a secondary view. The House of the Menander provides special secondary views for two rooms. An especially wide space between the columns of the peristyle in front of the great *triclinium* (18 on the plan) forms a strong cross-axis to the dominant visual axis, while within the western cover of the peristyle, the architect set up an axial relationship between *oecus* 11 and *exedra* 25. Like the principal visual axis, these secondary axes articulated the values that the architect and the owner wished to communicate to the visitor. The axis of the *triclinium*, further accentuated by its distinctive roofline, calls attention to its great size (the largest in Pompeii). The secondary axis along the western peristyle shows how important the cult of the *lares* and ancestors was to the owner: he even had the *exedra* sheltering the altar (25) decorated to imitate a venerable rustic sanctuary.

The rituals that took place in the rooms situated around the peristyle required a different kind of visual planning from that of the entrance sequence. Whereas the *fauces-atrium-tablinum* axis and circumambulation of the peristyle addressed the walking viewer, the *triclinia, oeci,* and *exedrae* were places where one rested and looked out from his or her place on a couch. Dynamic, or walking, spaces announced the goal of the walk from the point of entrance; in these we find arranged views of the terminus to prompt the visitor as she or he progressed through the spaces. Decoration in these spaces was tailored to quick recognition of simple patterns rather than long, tarrying analysis. In static, or resting spaces, the view *out* was of primary importance even while its decoration tended to be complex, requiring a viewer's prolonged attention (Scagliarini 1974–1976: 3–44).

The positions taken by guests on the three couches in the *triclinium* are central to the concept of "view planning" in domestic architecture. Normally, there was space for nine persons on three couches, placed in U-shaped order along the back and side walls of the dining space (Mols 1999). Each couch had a name, indicating its position in the room. Romans dined reclining on these couches while supporting themselves on their left elbows, so that the most desirable space, both for its convenience and view out of the space, would be from the left of the middle couch. The guest of honor received this so-called consular place, and the host reclined to his right ("at the top of the low couch").

Scholars have shown that in rooms likely to have been used for dining at Pompeii and Herculaneum the view out from the consular place, the rear left-hand side, is the favored one (Bek 1980: 194; Jung 1984). From there one can best appreciate planned views of fountains, statuary, and gardens framed by a symmetrical arrangement of window and door frames, columns, or piers.

Like the *fauces*-atrium-*tablinum* axis, all of these planned views out of static spaces employ a sequence of frames and visual symmetry. Although not universal, there is enough evidence to infer that the view out of these static spaces in the peristyle was important enough for the architect to move columns, site sculpture, and install fountains as centers of interest for those looking out. Often, when it was impossible to build them, the architect relied on painters and mosaicists to substitute fictive decoration for these features.

Some city houses were able to enjoy views beyond the confines of the peristyle. Among the more dramatic city houses with views were the House of the Mosaic Atrium and the House of the Stags in Herculaneum. They share a party wall that runs down the middle of the city block that they occupy. Built upon the rampart that constituted Herculaneum's city walls, they looked out over the Bay of Naples below. Both houses embrace this view, but in different ways. In the House of the Mosaic Atrium, the *fauces-atrium-tablinum* axis ends in the *tablinum*, while a garden bounded on three sides by a covered walkway ends in a great room perched on the former rampart and oriented toward the view. The stronger axis is the one toward the sea; the architect never resolved the conflict with the *fauces-tablinum* axis, yet through a window on the right wall of the atrium, the visitor can glimpse what visual pleasures await if he or she is invited to step down into the covered portico to enjoy the rest of the house.

If Vitruvius saw the atrium as a necessary part of the *domus*, Pliny the Younger (ca. 61–112 CE) regarded it as an old-fashioned requisite (*Ep.* 5.6.15). In the House of the Stags the architect suppressed the atrium to create a magnificent *oecus* that was the first in a series of framed views leading to a platform above the sea. There is evidence of "view mania" also at Pompeii, where in the last decades of the first century BCE, houses with multiple stories along the city's high escarpment abandoned the traditional *domus* plan to take advantage of the sea view. Most lack the atrium.

2.1. Post-Pompeian versions of the domus

Although the *domus*-with-peristyle continues to be the main representative form for the wealthy classes, as attested by the Marble Plan of Rome dating to the early third century CE and the excavations at Ostia Antica, new solutions rapidly develop employing the medium of vaulted, brick-faced concrete (Priester 2002). These are the multi-story, multi-family apartment houses that characterize the bulk of housing in Rome from the period after the Neronian fire (64 CE) and at Ostia after the building of Trajan's harbor at Portus (100 CE; see Chapter 17).

The House of the Muses as Ostia (III, IX, 22; ca. 128 CE), with its carefully orchestrated and generous spaces, offers a good example of the way that

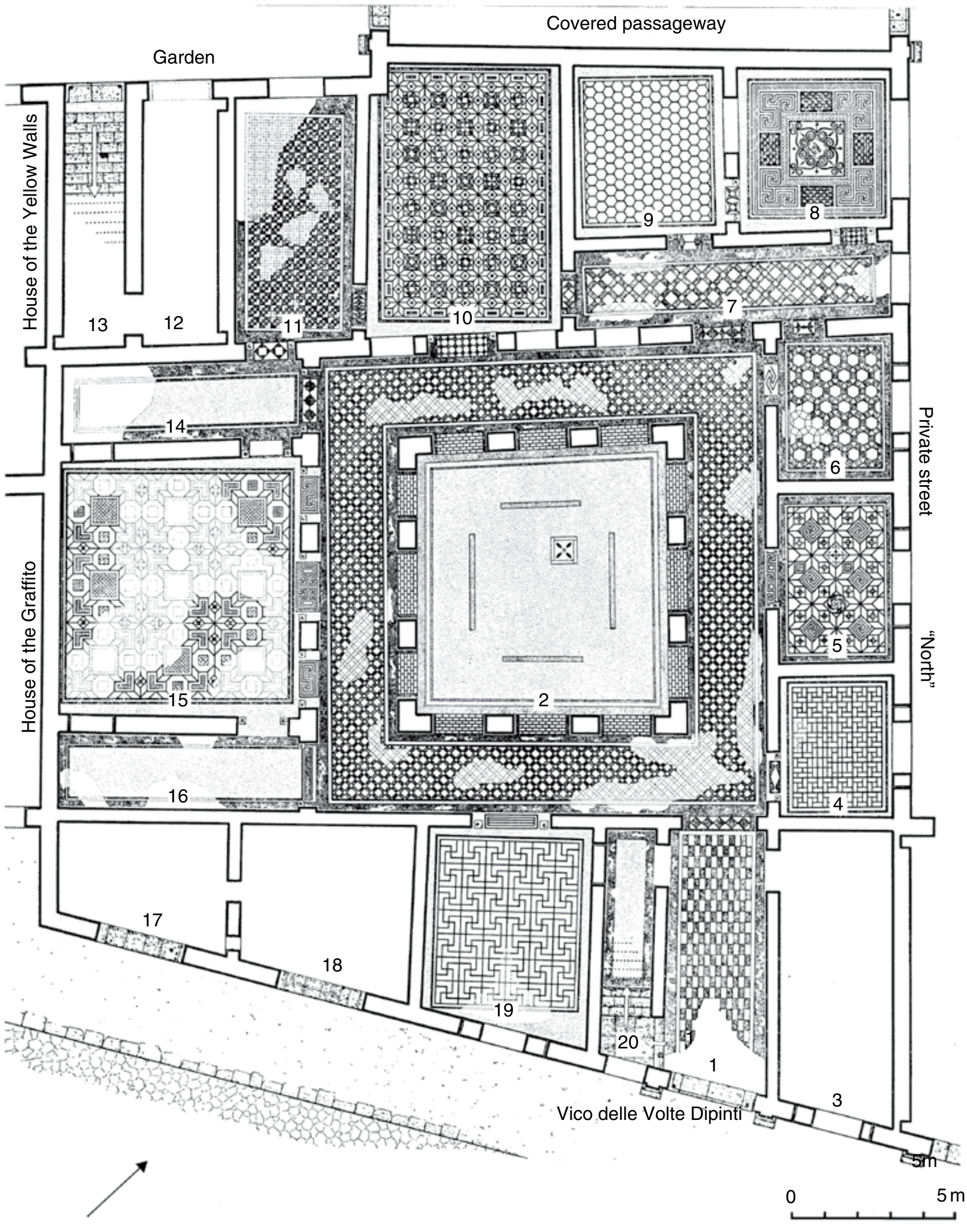


Figure 18.3 Ostia, House of the Muses (III, IX, 22), plan with mosaics indicated. *Source*: Clarke.

architects rethought the spatial dynamics of the *domus*-with-peristyle house. It is a large house (749 m^2) centered around an arcaded *quadriporticus* that replaces the columned peristyle (Figure 18.3). Based on the experience of the *domus*, we would expect a view-through from the vestibule at 1, but instead

the visitor must discover the principal axis as she walks along the north side of the *quadriporticus*. Room 15, located in the middle of the south side of the *quadriporticus*, is the largest and most important room, marked with a triple-arcaded entrance and covered with a groin vault. This room must have functioned both as a *tablinum* and as the largest dining space. Its axis aligns with an elegant sitting room on the opposite side of the *quadriporticus*, the Room of the Muses (5), tastefully decorated with images of Apollo and the nine Muses. Another privileged axial view, from the interior of *triclinium* 10, the second-largest room in the house, coincides with two axially aligned arcades of the *quadriporticus*. A suite consisting of two rooms and a corridor (7–8–9) affords spaces whose access could be limited to intimates of the owner. Both the mosaic decoration and the extant wall painting further define the function of spaces, from the simple all-over patterns of dynamic spaces (1, 2, 7, and 16) to the complex geometries and figural imagery employed in static spaces. Even though the architect has melded two distinct experiences of the atrium house (the entrance through the *fauces* with the circumambulation of the peristyle) into a unified plan, he has retained the patterns of entrance and the hierarchies of space that characterize the *domus*-with-peristyle. In smaller Ostian houses of the second century CE, we find another spatial compromise in the so-called *medianum*, an internal hall surrounded by rooms on three sides with large windows to the exterior on the fourth side. The *medianum* took over the functions of *porticus* and corridor, providing light and circulation to the rooms arranged around its three sides. The largest and second-largest rooms of the house would be located at opposite sides of the *medianum* (Hermansen 1981: 35).

As for the forms of the late *domus*, no single solution comes to the fore (Becatti 1948; Muntasser 2003). Rather we find the architects rearranging functional units, such as entryways, reception spaces, peristyles, and water features, according to the available space. We can best study these late *domus* at Ostia, particularly from the late third and fourth centuries. Often we find luxurious *domus* built within former apartment houses (e.g., House of the Dioscuri (III, IX, 1); House of the Nymphaeum (III, VI, 1)). Others, like the House of Fortuna Annonaria (V, II, 8), are remodeled second-century luxury houses. Although we find no single plan to match that of the *domus*-with-peristyle in any of these late antique houses, they share several formal traits: generous interior courtyards; extensive use of water features; internal axial views of peristyles, fountains, and sculpture from reception and entertainment spaces; use of new support forms (especially piers in place of columns and point-loaded arcades in place of rectilinear architraves); and rooms terminating in apses. In place of the view-through that characterizes the late republican and early imperial *domus*, architects employed various strategies to create a dramatic entrance experience as well as often circuitous paths to the important

reception spaces. In place of the clear client-to-patron axis, we find spaces that encode more roundabout and complex relationships between patron and client (Muntasser 2003). Despite the diverse shapes that the dynamic and static spaces of the late-antique *domus* came to assume, some of the planning principles of the atrium house remained: emphasis on the visual axis in dynamic spaces; planning of the view out from static spaces; and the careful differentiation of public from private space.

3. Systems of Decoration

If the spatial layout of a house programmed the behavior of the persons who used it, its decoration participated as well in a coding process that modified, emphasized, and often personalized ritually-defined spaces through perspective, color, and the meanings of the images included in the decorative schemes. Ensembles of painted, stuccoed, and mosaic decoration complemented and enhanced a viewer's perception of the spaces of the Roman house.

The systems for decorating the interior surfaces of the Roman house developed logically from the construction technique. Houses were built on a "slab" made of pounded earth and mortar, and all the walls of a house, both exterior and interior, were made of stone and cement coated with plaster. Because there were few, if any, windows to the exterior, wall surfaces tended to be continuous and unbroken. Although first developed by August Mau (1882) to characterize the decoration of houses buried by Vesuvius, the Four Styles of wall decoration appear throughout Roman Italy and into the western provinces of the Empire (Ling 1991: 168–174). Two basic approaches characterize the decoration of walls: the boundaries of each space could be emphasized as solid surfaces by sheathing them in real or painted imitations of precious colored marbles (the First Style, 200–90 BCE; the Third Style, 15 BCE–45 CE), or they could be opened up with perspective schemes seeming to recede behind the physical boundary of the wall (the Second Style, ca. 90–15 BCE; to a lesser extent, the Fourth Style, 45–100 CE). In a similar vein, the cement floors could either be decorated as flat surfaces, or elaborately framed illusionistic pictures could be set into them.

From its eastern Mediterranean origins, the First Style spread through Italy in the second century BCE and lasted until about 90 BCE (Figure 18.4). It imitated costly marble masonry with plaster and paint, thereby introducing into the private house the wealth and status associated with the palace and temple. Like faux-marble techniques used to this day, First-Style decorations succeeded if they fooled the viewer into believing that painted plaster walls were really constructed in precious marbles. Rather than being work for painters, stucco workers (*tectorii*) created First-Style decorations, forming plaster

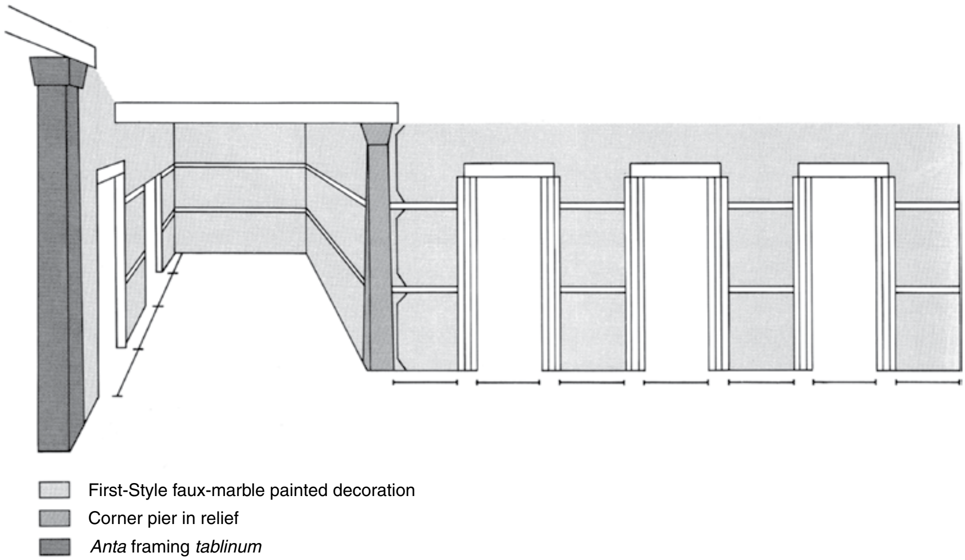


Figure 18.4 Pompeii, House of Sallust (VI, 2, 4), drawing of First-Style scheme of south wall of atrium. *Source*: Clarke.

to make the fluted piers, moldings, and capitals that substituted for the real thing. These architectural elements form the basis of the credibility of First-Style schemes: the successive rows of marble blocks and moldings of the bottom, middle, and upper zone were framed by piers and capitals placed at doorways and openings to rooms. All of these elements received the colors of expensive and often rare marbles, carved and molded to match ashlar masonry walls. Rather than being a painting style, the First Style is really a plaster cast of architectural forms (de Vos and de Vos 1982: 340).

Because of the one-to-one correspondence of the components of First-Style systems to the solid surfaces of rooms, their corners, and their openings, they make no special demands on the viewer who perceives them: there is no favored viewing position. In its neutrality, First-Style wall decoration leaves the viewer free to notice the volumes of individual spaces and especially the visual axes that were so important to the perception of the *domus.* In the First Style the visitor must infer the function of a room not from the changes in the lavishness of decoration among rooms, but rather from the size and position of the room within the plan of the house. In contrast, the variety of motifs and illusionistic effects of the later styles allowed the patron and painter to differentiate and rank spaces with extraordinary subtlety.

Because pavements systems of the First Style allowed greater variety than the wall system, they sometimes did the work of differentiating spaces. First-Style houses, like the Samnite House in Herculaneum, usually received simple

cement pavements decorated with geometric designs formed by rows of mosaic cubes (*tesserae*). These cement floors could be either black (*lavapesta*) or red (*cocciopesto*, also called *opus signinum*). Their simple, all-over designs imitated carpets and were often arranged, like carpets, in the center of a room, with borders or runners at the edges of the space. Such pavements made no particular appeal to the viewer's attention other than the occasional emphasis on the center of a room.

However, in the latest phase of the First Style (ca. 120–90 BCE), illusionistic mosaic pictures begin to appear on the floor. Prefabricated in a workshop using extremely small colored tesserae (1–5 mm) arranged to imitate the individual brushstrokes of a painting, these paintings in stone were portable. We find these insets (called *emblemata*) installed into mosaic floors worked in much larger tesserae of regular cubic shape (0.5–1.0 cm.). The number and size of the *emblemata* employed in a house depended only on the patron's wealth, but invariably they appear in the most important reception spaces of the house.

The use of illusionistic *emblemata* on floors created curious problems, since the mosaic-pictures formed an illusionistic "hole" in the flat surface underfoot. Their imagery would make sense only when seen right-side up, forcing a viewer to stand in front of them and close up. During the period of the Second Style (90–15 BCE), the illusionistic *emblemata* declined in popularity to be replaced by geometric designs. Although these, too, were colored and often shaded to create illusions of three-dimensionality, they lacked figures and backgrounds and thus offered little competition with the complex architectural perspectives on the walls.

If the First Style seeks to create spaces that are uniform in their structure and closely aligned with masonry construction techniques, the Second Style uses the tricks of perspective to project often fantastic architectural elements in front of the wall plane as well as behind it. In place of the reassuring relief surfaces (ashlars, cornices, moldings), we find a panoply of perspective constructions begging the viewer to believe that the flat, closed wall is instead the entrance to a royal palace or an elegant sanctuary. If we compare an axonometric drawing of a First-Style system with a room from the House of the Griffins in Rome that employs the earliest variety of Second-Style decoration (Phase I, 90–60 BCE), the dependence of the Second Style on perspective is readily apparent (Figure 18.4 and Figure 18.5). In the First-Style decoration, imitation marble blocks in relief articulate all wall surfaces in three horizontal zones, with special framing elements (piers and *antae*) at openings. In the Second-Style scheme, columns painted in perspective appear to hold up an architrave. By spacing these columns or bearing elements regularly around the walls of a room, the painter created a kind of colonnaded pavilion. The painting scheme in the House of the Griffins seems downright conservative in

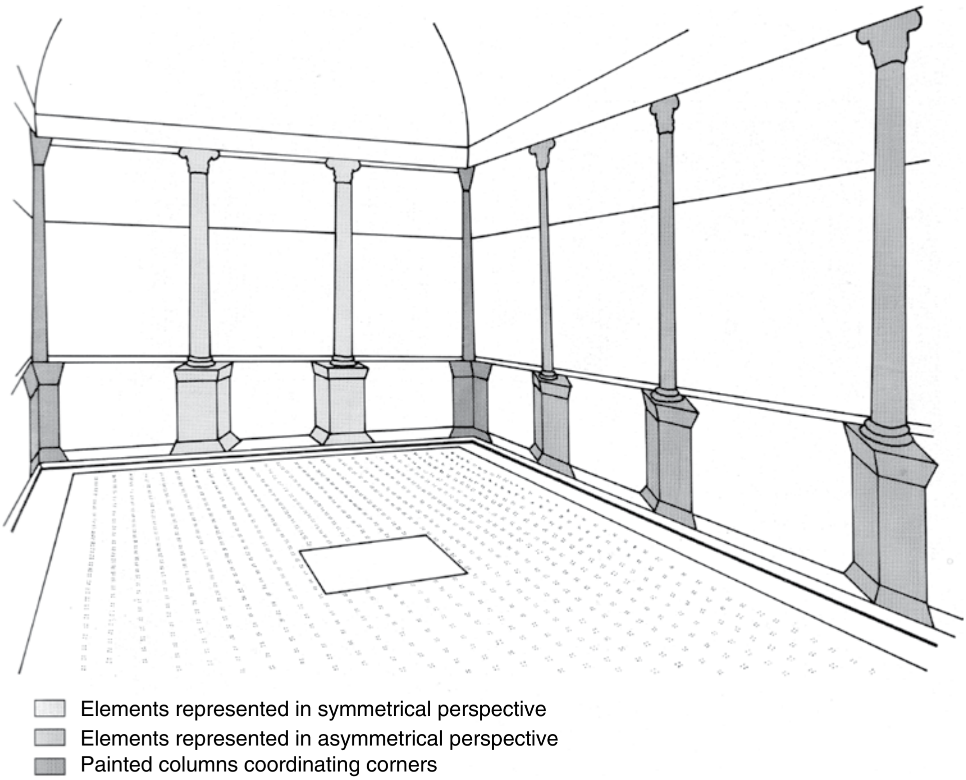


Figure 18.5 Rome, House of the Griffins, *cubiculum* II, drawing of perspective scheme. *Source*: Clarke.

comparison with wall decorations of the mature Second Style (60–40 BCE); between columns that seem to project forward from the wall plane, artists began painting complex foreshortened architectural prospects opening up "behind" the wall. What is more, mosaicists, stuccoists, and wall painters collaborated to emphasize the function of each room, often creating separate decorations for static and dynamic spaces within a single room. In *cubicula*, the decorative schemes in the bed-alcoves are different from those of the anterooms. The same holds true for dining rooms. Although the right and left walls of *triclinium* 14 from the so-called Villa of Poppaea at Oplontis (Torre Annunziata, near Pompeii) mirror each other, on each wall the painters differentiated the outer space for the circulation of servants (a relatively closed system of marble panels and ashlars) from the dramatic view of a round temple enclosed in a peristyle opening up "behind" the wall (Figure 18.6). Tall painted pilasters on the wall join with the meander band on the mosaic floor to reinforce this division of functions.

Whereas First-Style decoration is a straightforward imitation of built forms, the Second Style requires a certain suspension of disbelief on the part of the



Figure 18.6 Torre Annunziata, Villa of Oplontis, *triclinium* 14, west wall. *Source*: Digital reconstruction by Martin Blazeby, King's Visualisation Lab, King's College London.

viewer. Although the trompe l'oeil architecture is believable in the middle and upper zones of the wall, it fails to convince the viewer where the painted walls meet each other at the corners or where walls meet floors. At these points the illusionistic columns or piers that appear to support the architrave get awkwardly "folded" to fit into the corner, or the painted orthogonals of column- and pilaster-bases "crease" where wall meets floor. In these areas the illusion inevitably breaks down. The final phase of the Second Style (40–15 BCE) addressed this difficulty by de-emphasizing the architectural perspectives and converting the room into a picture-gallery (*pinacotheca*), with a large illusionistic picture at the center of each wall. Architectural forms become attenuated and no longer believable as supporting elements, often taking fantastic vegetal and even animal forms. By the time Vitruvius was writing, the solid, perspective-based architecture was fast disappearing, much to the conservative engineer's displeasure (*De Arch.* 7.5.3–4; for the fantastic new forms in easel painting, see Hor. *Ars P.* 1–13).

By 15 BCE, the tendencies toward flatness and miniature detail that Vitruvius decried developed into an entirely new manner. The Third Style (ca. 15 BCE–45 CE) returned to the notion that the wall was a flat surface. But unlike the literal construction of a wall that we see in the First Style, the Third Style provided rewards for the viewer with a sharp eye for detail. He or she would have to search for an indication of foreshortened architectural members because every element of the scheme had become a preciously detailed miniature. There was no illusion of fictive architectural members projecting

forward or receding behind the actual wall plane. Only in the central picture (where present) does illusionism reign.

Mosaic floors changed at the same time, with black and white tessera mosaics replacing the shaded polychrome forms of the Second Style. This change brought about the unification of the floor as a flat spatial limit, and the exclusion of polychromy avoided competition with the colored designs of walls and ceilings. All-over, abstract patterns prevailed, save in the *fauces* or the spaces of the bath, where figural imagery often greeted the visitor (Clarke 1979: 9–16).

The thoroughgoing architectural illusionism of the Second Style never returned in wall painting schemes, although the Fourth Style (45–100 CE) employs symmetrically arranged false windows and doorways that take the eye "behind" the wall to view a bit of foreshortened architecture. In dynamic spaces we find repeating wallpaper-like patterns representing tapestries stretched between candelabra or series of *aediculae* (shallow shrines or temple-fronts). Analysis of systems that set *aediculae* side by side in the middle and upper zones of a wall shows that they derive from the scene building (*scaenae frons*) of the Roman theater. In static spaces, an elaborate *aedicula* normally frames a painting at the center of each wall. A patron could choose the subjects of these pictures according to the function of the room, often constructing programs of related mythological subjects in rooms designed for leisure (Bergmann 1994).

Although less well documented in the second and third centuries, wall and floor decorations continue to create hierarchies within the *domus*. Both in the wall painting and in mosaic or marble decoration, the finest work, including schemes with costly center pictures, appears in the best reception spaces, whereas we find simple, repeating patterns in the dynamic spaces (Clarke 1991: 266–361). We can see this decorative hierarchy in the mosaics of the House of the Muses (see Figure 18.3). In like fashion, the finest wall paintings appear in the Room of the Muses (5) and in *triclinium* 10. In their design, wall paintings continue to alternate between faux-marble panels that emphasize the flat wall plane (Ostia, Inn of the Peacock, room 9; Clarke 1991: 349–353, pl. 24) and perspective constructions that seem to pierce it (Ostia, House of Jupiter and Ganymede, room 4; Clarke 1991: 327–336, pl. 23).

The late-antique *domus* shows a return to polychrome mosaics, especially in reception spaces, sometimes employing pictorial *emblemata* (Ostia, House of the Dioscuri, room H), sometimes with figural motifs (e.g., the hunt) freely arranged over the floor (Ellis 2000: 132–134), whereas walls generally assert their flatness, decorated with real or imitation marble revetment (Ostia, House of Amor and Psyche). Decorative systems on the floor, like those on the walls, continue to differentiate dynamic from static areas, varying the complexity of the design, whether abstract or figural, and whether carried out in mosaic or in cut marble (*opus sectile*) (Swift 2009: 27–104).

From this brief overview we can conclude that the *domus*, as the ideal visual representation of the elite *paterfamilias*, encoded his social status in its spatial arrangement and in its decorative apparatus. Elements of this coding, especially the axial view-through, the circulation systems of the atrium and peristyle, and the hierarchies set up by both the architecture and the decorative systems, endured beyond the heyday of the *domus* form (second century BCE–100 CE). If anything, the material evidence suggests that architects, painters, and mosaicists continued to manipulate these codes well into the fourth century. It was the idea of the *domus*, as physical framework for the rituals of business, entertainment, and worship, that guided the course of Roman domestic architecture for six centuries.

GUIDE TO FURTHER READING

For a synthesis of the scholarship on the *domus* and *domus*-with-peristyle to 1990, see Clarke (1991); much of this chapter is based on that book. Wallace-Hadrill (1994) brings together the author's articles on the subject, many of them applying new methodologies from archaeology and the social sciences to the question of domestic architecture. Barton's edited volume (1996) offers a good synthesis of earlier scholarship, with chapters on urban housing (Brothers) and country houses (Percival), as well as an introduction to Roman urban planning (Owens). Laurence and Wallace-Hadrill (eds.) (1997) includes many valuable chapters that reassess earlier research on the Roman house and others that introduce entirely new material, much of it arising from archaeological investigations. Ellis (2000) is useful for its Empire-wide survey that takes into account variations in form and purpose. Hales (2003) examines domestic space, both at Pompeii and throughout the Roman Empire (especially in Roman Britain), for evidence of social systems. Leach (2004) focuses more narrowly on decorative systems in houses and villas as a way to understand Roman social relations.

CHAPTER NINETEEN

Private Villas: Italy and the Provinces

Mantha Zarmakoupi

Introduction

The cultural phenomenon of private country houses was related to two contrasting but interrelated concepts vis-à-vis life in the countryside. On the one hand, the cultural phenomenon of private country houses was embedded in the idea of leading a luxurious life *à la grecque*, away from the burdens of the city (*otium* as opposed to *negotium*), appreciating the aesthetic qualities of the landscape. On the other, it was deeply rooted in the belief that life in the countryside should abide by frugal ancestral values, emphasizing the utility of a productive agricultural unit. From the late republican period, literary sources and visual representations described and praised the aesthetic qualities of the landscape as well as the agricultural production of the land. Latin authors celebrated the Roman achievement of a man-made nature that was, on the one hand, milked for its agricultural revenue and, on the other, put in the service of a luxurious life in the countryside. Roman country houses were the architectural expression of this cultural milieu. In designing for life in the countryside, Roman architects explored contemporary ideas about landscape as an aesthetic form as well as a means to complement the owners' income. In doing so, they made an important contribution to the history of architecture and landscape architecture: the architectural type of the villa whose design language articulated a sophisticated interplay among architecture, landscape, and cultural identity.

A Companion to Roman Architecture, First Edition. Edited by Roger B. Ulrich and Caroline K. Quenemoen.

1. What is a Roman Villa?

Grand farmhouses existed since the sixth century BCE in the Italian countryside (Torelli 1990; see Chapter 1), for example, the Auditorium site just outside Rome (Terrenato 2001), but the emergence of the country house as a symbol not only of agricultural production, but also of luxurious leisure occurred after the second century BCE and was in tune with contemporary constructions of Roman cultural identity (Wallace-Hadrill 1998; see Chapter 2).

Latin authors used the term *villa* to refer to different types of buildings over time and not only to a single building, but also to a complex of buildings, or even collectively to a complex of buildings and their surrounding land (Columella, *Rust.* 1. 6.21; Cato *Agr.* 6.1). It is clear that the term *villa* referred to premises set deep in the countryside and sometimes the term in *villa* conveyed simply "in the country" (*Digest.* 1.16.211; Percival 1976: 13–15; see also Leveau 1983). The evolution of the meaning of the term *villa* from the middle republican to the early imperial periods, as attested in the agricultural treatises of Cato (234–149 BCE), Varro (c. 116–27 BCE), and Columella (first century CE), points to the creation of a new building type that could accommodate not only agricultural activities, but also a new lifestyle of leisure and luxury in the countryside. The *villa* was the symbol of this new lifestyle, and as such it became the contested subject of discussions about the way in which a Roman citizen should behave and live (Purcell 1995; Wallace-Hadrill 1998).

In writings of the first half of the second century BCE, for example, Cato the Elder used the term *villa* to describe a farmstead that served the production needs for certain commodities and provided only basic shelter and minimal comforts (Cato, *Agr.* 1.1–7). Examples of such farmsteads include the site of Giardino Vecchio (Attolini *et al.* 1982: 383–385) and the Villa Sambuco (Östenberg 1962: 313–320) in Etruria, dating to the end of the third and beginning of the second century BCE. Both farmsteads featured big storerooms, had moderate dimensions (around 500 m^2), and were constructed with simple techniques (wooden frames filled with sun-dried clay).

Around the middle of the second century BCE, the literary sources make references to villas whose appearance surpassed the simplicity of a farmstead. In a speech delivered in or soon after 152 BCE, Cato is cited speaking against the rise of luxury in villas of his contemporaries (Cato in *ORF* 185 = Festus, 282.4), and in a speech of 140 BCE, Cornelius Scipio Aemilianus Africanus mentioned luxuriously furnished villas (Cornelius Scipio Aemilianus Africanus in *ORF* 20 = Aul. Gell. 2.20.6; D'Arms 2003: 15–29). In the political turmoil of the period following the Second Punic Wars, the ruling elite, worrying about the socio-economic foundations of their class, criticized the material

manifestations of luxury as a means to restrain the fragmentation of wealth (Wallace-Hadrill 2008b: 319–338). Luxury was relative to the social status of the owner, for what was standard for a consul could be perceived as luxurious for someone whose status was not authenticated by ancestry or public office. In this context, villas, together with houses, were markers of social status and indicators of political aspirations and as such became targets of criticisms (Edwards 1993: 137–172). Archaeological evidence from this early period of luxury villas is scarce. Some of the earliest examples of luxurious villas are the villas in the *ager Tiburtinus* and *Sabinus*, for instance the so-called Villa of Quintilius Varus dating to the end of the second or beginning of the first century BCE, which had terraced gardens featuring large *piscinae* (Giuliani 1970: 299–302; Mari and Boanelli 1991).

The conquest of the Hellenistic East brought an abundance of resources to both the Roman aristocracy and the equestrian orders. The wish to display this wealth in the private sphere – as opposed to doing so only in the public sphere (e.g., in triumphal processions and public benefactions) – led to the conceptualization of country houses as luxurious retreats. The building of luxurious country houses partook in the social and political games of the period and served to satisfy the owners' bid for political power and social advancement. Additionally, the new construction technique of *opus caementicium* enabled Roman designers to build faster and cheaper monumental terracing structures, which until then were built with polygonal masonry (Mari 1991: 31–39; Tombrägel 2010), and colonnaded garden enclosures. In doing so, they emulated the terraced sanctuaries and the monumental colonnaded enclosures of contemporary public buildings for which – in turn – the architectural language of Hellenistic architecture had been used (Gros 1973; 1976b; see Chapter 13). Hellenistic influences were inextricably linked to the formation of Roman villa architecture and culture (Rakob 1976), as they were in all fields of Italian material culture in the last two centuries BCE. During their studies and travels to the Hellenistic East as well, of course, as their military expeditions, Romans had encountered monumental colonnaded architecture, which they sought to emulate in their country houses and, in miniature, in their city houses (Zanker 1998: 145–163). For instance, the peristyle courtyards of Hellenistic palaces and training grounds (the *palaestrae* of the gymnasia), such as the palace at Aigai and the *palaestra* in Olympia, informed the structure of the peristyle-garden; and the monumental terracing of colonnaded sanctuaries and royal capitals, such as the sanctuary of Asklepios in Kos and the Acropolis of Pergamon, was emulated in the substructures of the villas (*basis villae*) (Förtsch 1993: 92–93).

In the following century, Varro, writing about 55–37 BCE, distinguished two villa "types," the frugal *villa rustica* and the luxurious *villa urbana* (*Rust.* 1.13.6), which he emphatically contrasted to one another regarding the kind

of life that one led in them. The former was the equivalent to the simple farmstead of Cato, a productive agricultural unit that was in tune with Roman ancestral values, whereas the latter was a comfortable countryside leisure retreat, a product of the corrupting influences of Greek culture that followed contemporary decorative fashions (*Rust.* 1.2.10, 1.13.6–7, 2.1–3). We should not accept without question, however, the moral antithesis that Varro drew between the frugal *villa rustica* and the luxurious *villa urbana*. Varro emphasized the antithesis between luxury and frugality, which he paralleled to other contrasting concepts (i.e., town versus country, Greek versus Roman), in order to construct his arguments vis-à-vis Roman identity in the turbulent late republican period (Wallace-Hadrill 1998; 2008b: 196–208). His distinction between the *villa rustic*a and the *villa urbana* is ideological rather than typological. Luxurious villas were attached to productive estates no matter how much conservative Romans wished to conceal them in their writings. Roman landowners used both agriculture and elegance as "alternative forms of display" (Purcell 1995: 152). Columella, who wrote around the middle of the first century CE, provides a less biased description of the villa. Instead of opposing the *villa rustica* to the *villa urbana*, he distinguishes different parts of the villa on the basis of their function: the *pars urbana* comprised the dwelling house, the *pars rustica* the production quarter, and the *pars fructuaria* the store-house (Col. *Rust.* 1.6.1).

The villa at Settefinestre in Etruria offers a prime example of how the design of the Roman villa accommodated the dual aspects of villa life (Figure 19.1; Carandini and Rosella Filippi 1985). The earliest phase of the building dates from the late second or early first century BCE. It was renovated around 40 BCE – the excavators proposed this decorative phase as the construction date of the villa, renovated again and expanded towards the end of the first and beginning of the second centuries CE, and then abandoned by the end of the second century CE (Dyson 2002: 224–226). The design of the agricultural and residential parts unifies productivity and elegance. They were located in the same square-shaped building block and were both accessed through a rectangular forecourt, surrounded by a series of service rooms. The excavators identified this rectangular forecourt as the slave quarter of the villa (Carandini and Rosella Filippi 1985: 1:157–159; contra Marzano 2007: 125–139). The part that was devoted to agricultural activities consisted of grape presses at the northwest and an olive press and olive mill at the southeast, where the baths were also located. It was accessible from the residential part through two passageways – one from the atrium accessing the southeast area and one from the peristyle leading to the northwest area. The residential area was elaborately decorated. A Corinthian *oecus* with *exedra* offered a continuous view of nature, from the man-made gardens and granary (*pars fructuaria*) to the west

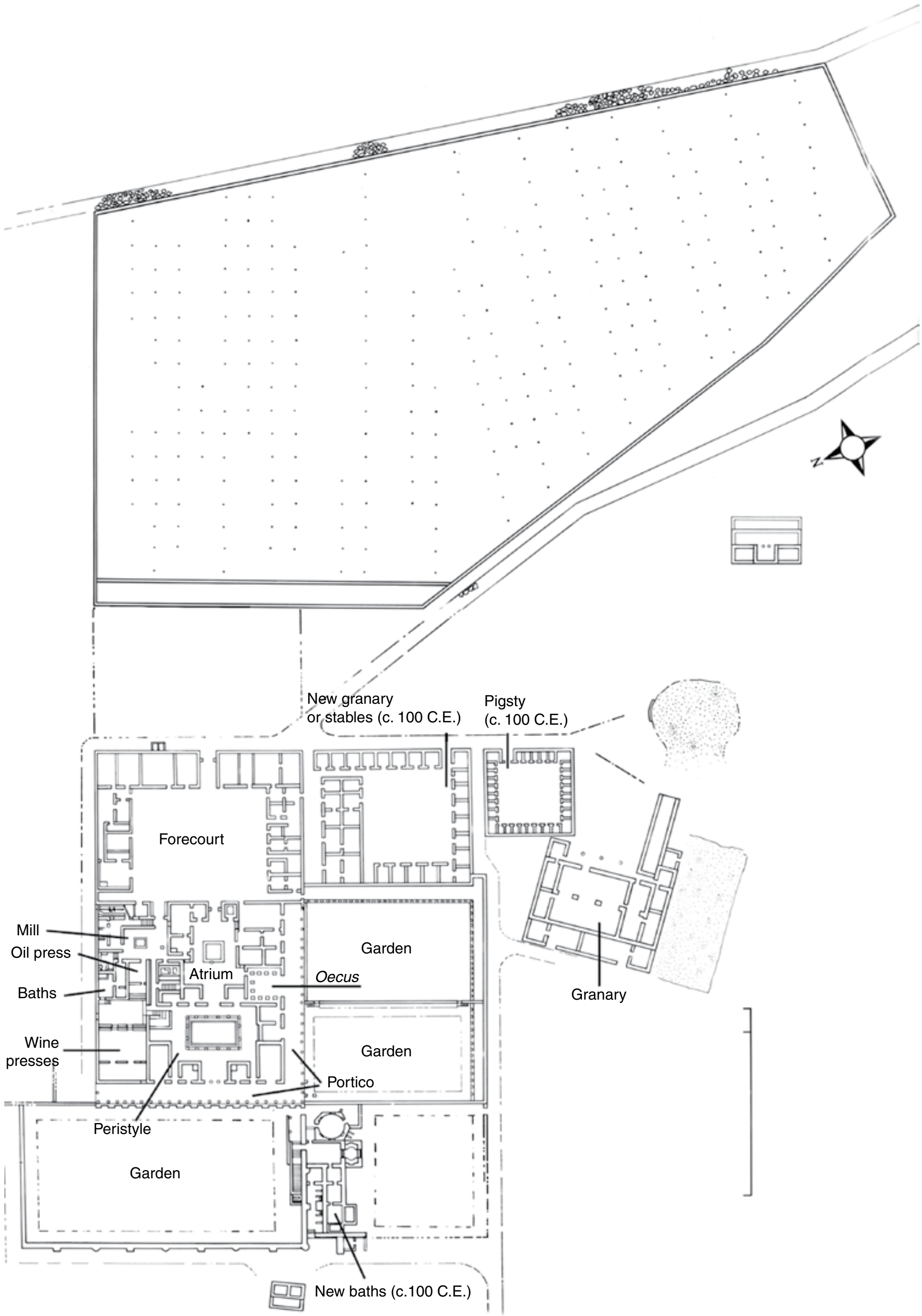


Figure 19.1 Villa at Settefinestre (Etruria), plan. *Source*: Zarmakoupi after Carandini and Filippi 1985.

plains of the *ager Cosanus*. As the needs of the villa increased over time, individual buildings were constructed around this central building block. Around 100 CE, a set of new baths was built to the west of the *pars urbana* as well as a pigsty and another granary or stable to the southwest. While the new storage installations indicate an increase in the agricultural production of the villa, the new set of baths points to a corresponding enhancement of leisure activity facilitated by the increased revenue. Although a large number of villas do not provide evidence for agricultural activities, this is likely the result of selective excavation (Carandini and Rosella Filippi 1985: 1:126; Marzano 2007: 102–124). The minimal solution of the united *pars urbana* and *pars rustica*, seen at the Villa at Settefinestre or in the Villa of the Mysteries in Pompeii (early first century BCE; Maiuri 1947; Esposito 2007), was not the norm. A more common solution was to have the *pars rustica* forming a different building that was usually adjacent to the *pars urbana*, as in the case of the Villa San Rocco at Francolise (early first century BCE; Cotton and Métraux 1985) and the Villa of the Volusii Saturnini at Lucus Feroniae (50 BCE–third/fourth century CE; Moretti and Moretti Sgubini 1977). In some cases the *pars rustica* and *pars urbana* of the villa were dispersed on the landscape, for example, in the Centroni Villa at Boville (first century BCE; Di Matteo 2002) and in the Settebassi Villa in the *suburbium* of Rome (second century CE; Coarelli 2007: 411–412). Structures dedicated to agricultural activities were found near these two villas and were probably part of their estates, constituting their respective *partes urbanae*. An important factor for the choice of the position of the *pars urbana* was the view to the surrounding landscape. A common choice in seaside villas was to place the *pars urbana* facing the sea and the *pars rustica* facing inland (Marzano 2007: 44), as at Villa Arianna A at Castellamare di Stabia (mid-first century BCE; Bonifacio and Sodo 2001; Grimaldi 2007) and the villa on Punta della Vipera at S. Marinella on the Tyrrhenian coast (first–third century CE; Gianfrotta 1972: 122–133).

Although villas were not the main source of income for their owners, their contribution was considerable (Marzano 2007: 47–81). In addition to growing crops, other prominent activities at the villas were animal, bird, and fish breeding – Varro's *pastio villatica* (Var. *Re Rust.* 3.2.13–16) – that offered considerable financial advantages. In the Villa at Settefinestre, the excavators have suggested that the polygonal enclosure to the south of the main building was used as an aviary and that pigs were kept in rooms around the courtyard that was added at the southwest (Carandini and Rosella Filippi 1985: 1:160–163, 2:182–188). Many seaside as well as inland villas had installations for pisciculture, a lucrative business that also served the purposes of display (Higginbotham 1997: 55–64; Marzano and Brizzi 2009). For example, the seaside villa on Punta della Vipera had a fishpond, measuring approximately 55 × 34 m, excavated in the existing coastal rock formations (Higginbotham

1997: 97–101), and the Villa of Quintilius Varus had a fishpond on one of its large terraces that was supplied by two aqueducts bringing water from the Anio River (Higginbotham 1997: 122–125).

This "landscape of production" was not contradictory to the life of leisure that is so prominently attested in lavishly decorated Roman villas (Purcell 1995; Marzano 2007: 82–101). The residential part of the villas, the *pars urbana*, looked over farming land, a fishpond, or a pigsty, as well as an ornamental garden like that found at the Villa at Settefinestre. Sumptuous interiors mastered views of all kinds of landscapes around them, and all of them were equally important to villa owners. Landowning and agriculture were considered to be secure investments and were indeed the primary source of income for wealthy Romans. The economic concerns of the land around villas were closely related, as I will discuss below, to the aesthetic qualities of the landscape that served the purposes of self-promotion and display.

In the provinces, Roman villas appeared after the first century BCE, within a couple of generations following the establishment of stable and peaceful conditions. The spread of the villa was the result of the increasing taste for and use of Roman building materials, techniques, and styles and was not the expression of a new social and economic form as it was in Italy (on the social and economic framework of provincial villas, see Percival 1976: 118–163). The adoption of both the architectural language (e.g., the peristyle-garden) and lifestyle of the villa (e.g., dining practices) rendered the provincial villas one of the explicit markers of "Romanization" (Rivet 1969a: 173–182; Leveau 1983: 922–927; Percival 1976: 35–40; see Chapter 20). However, local architectural traditions, regional agricultural particularities, climatic conditions, and the greater insecurity of the countryside affected the physical form of the villa in different parts of the Empire (Woolf 1998: ch. 6, esp. 148–157; generally, Percival 1976: 51–105; Smith 1997; for the west provinces, Gros 2001: 322–349; for North Africa, Rind 2009; on assumptions underpinning the concept of Romanization, Wallace-Hadrill 2008b: 9–32). In the frontier regions, for example, the needs of security and working efficiency seem to have been the predominant concerns in the design of villas, such as those along the German *limes*, including that at Köln-Müngersdorf (first–fourth century CE; Fremersdorf 1933).

In the case of the imperial villas, the landscape of production was relevant to the life led in them but did not affect their architecture. The imperial villas were designed for pleasure, and although all kinds of agricultural activities would have been needed for their supply, these were not housed in association with them. Imperial villas were grand *villae urbanae* on carefully selected locations, using sumptuous material and show-piecing sophisticated designs (Gros 2001: 350–378). The Villa of Livia at Prima Porta was perched on a hill that looked at the junction of the Via Flaminia and Via Tiberina towards Rome

(Messineo 2001; Forte 2007), its gardens featuring the infamous laurel grove (Klynne and Liljenstolpe 2000; Klynne 2005), while the sophisticated design of the underground *triclinium* accentuated the miraculous nature of the idealized wild and cultivated plants depicted on its walls (Kellum 1994; Zarmakoupi 2008). Tiberius's Villa Iovis on Capri was perched up on the rocky eastern summit of the island, and its rectangular courtyard was suspended over an impressive network of vaulted cisterns that formed the epicenter of its composition (Krause 2003: 63, 72, Figure 101, 82–83, Figures 120–122). And Hadrian's Villa at Tivoli was an intellectual and geographic microcosm of the Empire that featured an Academy, a Poecile, and a Canopus (*SHA Hadr.* 26.5) – among its many structures – over an area of about 26 hectares, while its massive vaulted structures were show-pieces of architecture (MacDonald and Pinto 1995: 25–138; see Chapter 4).

2. Designing the Villa

Employing an amalgam of Roman and Greek architectural forms, Roman designers produced a wide variety of architectural solutions that addressed the needs of life in the countryside. These ranged from the compact villa that presented a harmonized relationship between luxurious residential quarters and agricultural areas to the "villa sprawl" whose parts were dispersed on the landscape. Greek architectural types, such as monumental colonnades, had been used in the design vocabulary of Roman public buildings since the third quarter of the second century BCE (see Chapter 2). By appropriating them for the private sphere, designers emulated both Roman and Greek public architecture. In the case of the villas, the monumental forms were employed to articulate a novel design language that together with the decorative apparatus of the villas epitomized the contemporary preoccupation with landscape as an aesthetic and politicized element. Instrumental in the formulation of the architectural language of the villas were two factors. On the one hand, the new construction technique of *opus caementicium* enabled architects to build on a monumental scale with an unprecedented rapidity. On the other hand, the security of the countryside after the late republican period allowed the creation of designs that were more open to the landscape.

The desire to focus views outward set new kinds of design problems; at first architects experimented with the known forms of the traditional atrium-centered house. In many cases the design solution of the atrium was adapted to articulate one or more core areas of the villa. The atrium as a design solution served the needs of ventilation and light in the space constraints of the city. Although lacking such constraints in the countryside, architects initially adopted this solution in their villa designs. The reverse sequence of the atrium

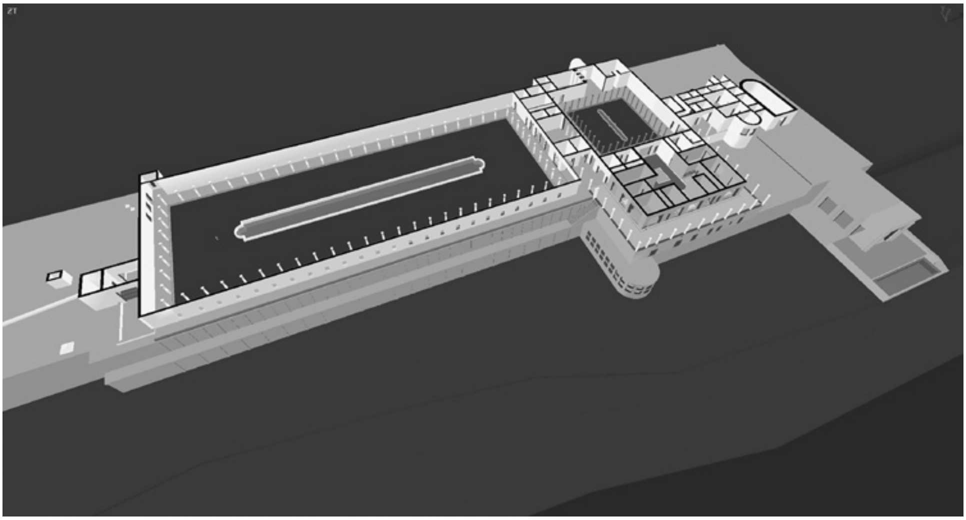


Figure 19.2 Villa of the Papyri (Herculaneum), bird's eye view of digital reconstruction. *Source*: Zarmakoupi 2010b.

and peristyle that Vitruvius describes (*De Arch.* 6.5.3), so that one entered the latter first, may have been an initial approach to the new design issues that the open landscape posed to architects. Late republican phases of some villas present this arrangement, for example the Villa of the Mysteries in Pompeii, the Villa of the Papyri in Herculaneum (Figure 19.2), and the Villa Arianna A in Stabiae. Vitruvius's scheme, however, was not the architectural formula of the country house. His treatise *On Architecture* defines Roman architectural identity, and indeed Roman identity itself, by a process of comparison and contrast with Greek practices, and like Varro, in the case of the villa the antithesis is further extended between town and country (McEwen 2003; Wallace-Hadrill 2008b: 144–210). Many late republican villas do not invert the order of the peristyle and the atrium; examples include the Villa at Settefinestre. The atrium was ultimately, however, not an essential element in villa architecture. As a design solution it responded to the Mediterranean climate, and for this reason it was primarily adopted in villas of Italy and of the southern provinces, such as the Villa Torre Llauder just outside Mataró in Spain (first–fifth century CE; Ribas Bertrán 1966) and the Villa du Taureau in Silin in North Africa (third century CE; Picard 1985).

Instead of the particular "inverted" relationship between the peristyle and the atrium of the villa, more remarkable is the way in which the peristyle was integrated in the villa and subsequently transformed. The conceptual affiliations of the peristyle form, as indicated in literary references of the first century BCE, lie in the architecture of Hellenistic gymnasia, the Greek educational institutions in which some Romans had in fact studied (Cic. *De Or.* 2.19–20).

The peristyle form, which had entered the Roman design vocabulary first in the public sphere – a notable example is the colonnaded Porticus of Metellus in Rome, dated to after 146 BCE – entered the design vocabulary of townhouses in the late second century BCE. However, the peristyle was not integrated in the circulation and function of the houses until the first century BCE, as one can see in the House of the Faun in Pompeii (Dickmann 1997; see also Chapter 18). In most Hellenistic examples, however, the space bordered by the peristyle was paved, whereas in Roman villas this area was planted with gardens that were embellished with waterworks and sculptures. The use of the peristyle form to enclose a garden was one of the novelties of the late republican and early imperial periods and is indicative of the Roman romance of landscape that was articulated in contemporary literature and wall paintings (Grimal 1943: 216–259). The qualities of landscape were praised in the pastoral poetry of Virgil, and its idealized and symbolic representations permeated visual arts in the public and private spheres; exemplifying this fashion are the garden paintings from the underground dining room of the Villa of Livia at Prima Porta (Kellum 1994; Settis and Donati 2002) and the relief on the altar enclosure of the Ara Pacis (Zanker 1988: 179–183; Förtsch 1989; La Rocca 2008: esp. 29–61). This appreciation of landscape found an architectural expression in Roman villas, especially in the form of the peristyle-garden. In the realm of the country houses, whether luxurious retreats or agricultural farms, ideas about landscape could not only be explored in visual representations but also tested in architectural design.

The design of the gardens complemented the architecture of the villas. In Villa A at Torre Annunziata, vines climbed on the columns of the portico (Figure 19.3, 40), and the plantings defined the circulation pattern of the north garden (Jashemski 1979: 297–306; and 1993: 295–297). Additionally, fictive views of landscapes offered by painted interiors toyed with views of real landscapes and accentuated the experience of landscape within the villas. In the same villa, for instance, the garden paintings on the walls of the light wells (Figure 19.3: nos. 61, 68, 70) of the east wing surrounded small garden enclosures. A viewer standing in rooms 65, 69, or 74 could "compare" these painted and real gardens with views to the north and the east gardens of the villa (Bergmann 2002). Copies of Hellenistic sculptures played on themes of tamed and untamed nature as well as athletic prowess – for example, the sculptural group of pan and she-goat and the two statues of boy athletes from the Villa of the Papyri (first century BCE–first century CE; De Simone 2010; Guidobaldi and Esposito 2010; on the sculptures see Mattusch 2005: 155–156, 189–194). At the same time, the representations of kings and philosophers addressed the role of Hellenistic philosophers as tutors and advisors of Hellenistic kings and associated the owners to an elevated status (Dillon 2000; on idealized statues in villas, Newby 2005: 88–140; for a synthetic approach

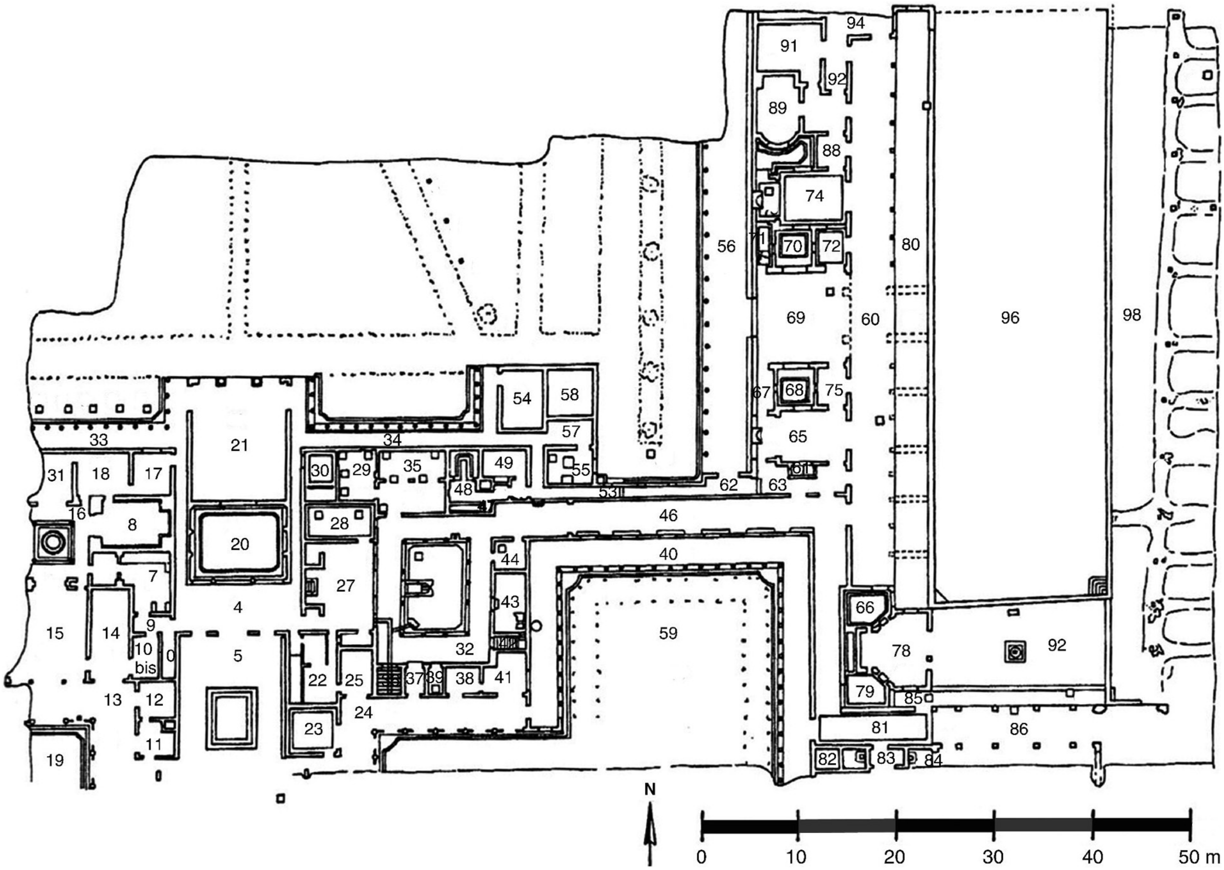


Figure 19.3 Villa Oplontis A (Torre Annunziata), plan. *Source*: Zarmakoupi after Förtsch 1993: pl. 69, 4.

to sculptural programs in Italy, Neudecker 1988; for sculptural assemblages in late antique villas, Stirling 2005). Sumptuous waterworks enhanced the design of gardens by creating a focal point for the perception of their spaces (consider the axially placed pools in the peristyle-gardens of the Villa of the Papyri) and promoted the theme of tamed nature. Atticus criticized the artificial streams created in villas of his time (mid-first century BCE), which his contemporaries called “Niles” and “Euripi,” favoring instead the physical beauty of the island formed by the little stream of Fibrenus in the garden of his villa at Tusculum (Cic. *Leg.* 2.2). Again, the Latin authors played on such dichotomies, in this case, that between the artificial and the natural that Atticus paralleled with foreign (i.e., Egyptian and Greek) versus Roman: the former point to the corrupting influence of the conquered East and the latter to the proper Roman way of doing things. Whether the water flew artificially or naturally, to have such an embellishment in the villa’s garden was a luxury; water supply and technological know-how underpinned the artificial waterworks, whereas the natural streams underscored the ownership of a very privileged property (on legislation regulating water rights, Bannon 2009).

The vast peristyle-gardens of the private villas, with their lavish waterworks, sculptural embellishments, and ornamental plantings, emulated Roman public gardens, such as the one enclosed within the portico of Pompey in Rome (55 BCE; Gleason 1994; see Chapters 2, 3, and 11), in the private sphere. By placing a garden within the peristyle, designers not only integrated the peristyle in the life of the house, but also “domesticated” the public pleasure garden, which had been one of the extravagant features previously and negatively associated with the excesses of Hellenistic luxury (Zarmakoupi 2010a). The porticoes were the visual and physical containers of the lush interior landscapes; they framed them and provided access to them, following the tradition of the Roman domestic garden, the *hortus*, after which green spaces were contained in the architecture of the house as if they were “domestic buildings” (Purcell 1996). The innovative design solution of the peristyle-garden was adopted across the Empire from the late republican to the late antique periods; notable examples include the Villa Arianna A in Stabia, the villa at Chiragan near Toulouse (first–fourth/fifth century CE; Joulin 1901), the villa of La Cocosa near Badajoz in Spain (mid-second–fourth century CE; Fernández Castro 1982: 88–133, pl. 23), and the Villa at Fishbourne in Britain (first–third century CE; Cunliffe 1971). The conceptual associations of the peristyle to the Hellenistic gymnasia, as well as the connotation of the garden as an eastern-derived luxury, certainly faded over time and across the Empire. On the one hand, decorating and sustaining elaborate gardens were in themselves luxuries, and the technological improvements of the aqueduct water supply network and the hydraulic technology of fountains were more associated with the gardens. On the other hand, the form of the peristyle lost its resonance as designers appropriated it to address different design questions.

The variations of the form of the closed peristyle-garden as well as its complete transformation to more open arrangements of porticoes and gardens were alternative solutions to the design possibilities presented by the open villa type. A common variation of the peristyle was to substitute one of its aisles for the position of a water source or pool. For example, in the so-called Villa delle Grotte on Elba island (first century BCE–first century CE; Casaburo 1997), a pool was placed in the middle of the fourth side of the peristyle. Another variation was to eliminate one of its aisles in order to open the view from the garden onto the landscape. In Villa A at Torre Annunziata, the three aisles of portico 40 surrounded garden 59 while the fourth side was open in order to take advantage of the view to the landscape. These design variants were adopted from the beginning of the first century CE and were used side by side with what may be seen as the more conventional form of the peristyle-garden.

In some cases the peristyle form was completely dismantled, and the porticoes and gardens followed the sprawling perimeter of the villas. Villa A at Torre Annunziata offers an example, where the porticoes of the north and east gardens followed the contour of the villa's volume and in turn defined the garden borders (new excavations at the villa, Thomas and Clarke 2007; 2009). This architectural solution had a practical explanation in Mediterranean villas. In the Mediterranean climate, the strong sun accentuates the volumes and features of a building conceived on multiple planes by casting deep shadows; thus, a portico can be creatively used to embellish a facade that would strike a viewer from afar. The appreciation of the visual effect of the sun's light entering the receding volumes created by the *porticus* and cryptoporticus structures is revealed in Pliny's description of his villa in Tusculum, where he speaks about the way in which the wide and protruding *porticus* that masked its south facade and entrance received the sun (*Ep.* 5.6.15). The site at S. Giustino (late first century BCE/first–second century CE; Braconi and Uroz Sáez 1999) that has been identified as Pliny's villa *in Tuscis* has a wide south prospect; no remains of a *porticus* have been preserved however (various sites have been suggested as Pliny's Laurentine Villa: Villa Plinio or Palombara at Castel Fusano, first–third century BCE, Ramieri 1995; Villa Grotte di Piastra or Villa Magna at Castelporziano, late first century BCE–third century CE, Salza Prina Ricotti 1985).

This visually impressive design variant was eventually adopted in the northwestern provinces, becoming a predominant type that has resulted in the modern classifications of the "(winged) corridor house" in England (Collingwood 1930), "Portikusvilla" in Germany (Swoboda 1919), and "villa à galerie de façade" in France, which have their limitations (Gros 2001: 322–349). Notable examples include the villa in Gadebridge Park, near Hemel Hempstead in Hertfordshire (first–fourth century CE; Neal 1974), the villa in Bad

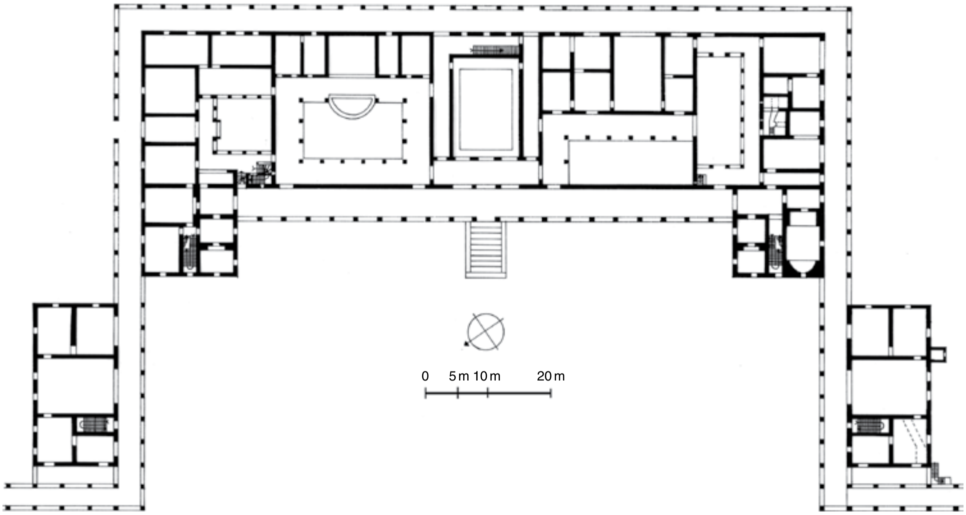


Figure 19.4 Villa at Nennig (Rhineland), plan. *Source*: Mylius 1924: pl. 4.1.

Neuenahr-Ahrweiler (first–third century CE; Fehr 2003), the villa at Nennig near the Moselle river in Rhineland (Figure 19.4; second–third century CE; Mylius 1924: 110–117; Echt 2003a), and the numerous villas in the Somme valley near Amiens recorded by aerial photography (e.g., villas at Estrées-sur-Noye and at Warfusée-Abancourt; Agache 1978). As the colonnades masked the villas' facade, they signified and accentuated their presence in the landscape, and in doing so served the self-staging of the owner. In a society where houses were associated with personal commemoration, the monumental presence of the villa contributed to the self-advertisement of the owner. Indeed, villas served as vehicles of self-promotion as well as settings for commemorative monuments, such as familial tombs (Bodel 1997; Griesbach 2007).

The transformation of the formal, enclosed peristyle-garden to more open arrangements of porticoes and gardens was also associated with the evolving needs of dining practices, which over time required more and more space. In the early imperial period, dinner parties became increasingly important for the social and political aspirations of the villa's owners and, as a result, more elaborate (Dunbabin 1996). In addition to banqueting, the entertainment at dinner parties could include performances of music, dance, and pantomime (cf. Varro, *Rust.* 3.13.2–3). The spatial needs of such augmented dining practices rendered traditional dining rooms (*triclinia*) insufficient, as their restricted space (ca. 2.20/2.40 × 1.20 m) could not accommodate the performances accompanying the dinner parties. This led designers to include a variety of spacious, multi-purpose rooms, at times clustered, in villas towards the end of the first century BCE and the beginning of the first century CE to meet these new needs perfectly (see rooms 21, 64/65, 69, and 73/74 and cluster of

rooms 66, 78, and 79 in Villa A at Torre Annunziata). The adjacent open porticoes and gardens helped to integrate these large (or clustered) rooms in the layout and functioning of the villas. As opposed to the tight composition of rooms around peristyle-gardens that characterized the traditional urban *domus*, the open layout of porticoes and gardens allowed the villa's dining spaces a privileged view of the landscape while also providing numerous options that could accommodate dining parties in different seasons (Cosh 2001; Zarmakoupi 2008: 271–273).

In the Late Empire the increasing importance of the entertainment for the dinner parties in villas led to the adoption of the triconch arrangement, which had been already used in Hadrian's villa. This arrangement provided a central space for the dinner entertainment that could be viewed equally from three apses or three different rooms and fitted more elegantly in one side of the peristyle-garden, as in the Villa at Desenzano on Lake Garda (fourth century CE; Scagliarini Corlàita 1997), in the Villa at Piazza Armerina (Figure 19.5, no. 46; fourth century CE; Carandini, Ricci, and de Vos 1982; Wilson 1983; 2011), and in the Villa at Montmaurin in Aquitania (fourth century CE; Fouet 1969) (for the development of dining spaces vis-à-vis the entertainment, Dunbabin 1996 and Rossiter 1991; for cultural assimilation of dining practices in Romano-British houses, Ellis 1995). These entertainment spaces, as well as the large reception halls in late antique villas, were settings for the increased social competition that was brought about by the Diocletianic and Constantinian social and economic reforms (Bowes 2010). Agricultural productivity and landowning underpinned these mechanisms, and owners made a point in showing their holdings in the visual representations surrounding their guests. For example, in the three-conch arrangement of a villa at Tabarca in Tunisia (early fourth century CE), three mosaics represent a residential villa and its separate working outbuildings in the midst of a landscape of production (Sarnowski 1978: Figures 4–6).

Parallel to the development of dining practices, and to the related importance of the generous hospitality that owners wished to offer their guests, one can observe the enlargement and autonomy of bathing suites during the first century CE. The social practice of dining included inviting guests for a bath before the dinner, even more so in the countryside where the alternative of using the nearby public baths was not always an option (e.g., Mart. 11.52.1–5; Petron. *Sat.* 26.20–27.1; cf. Plin. *Ep.* 2.17.25, 9.36.1–3; see Marzano 2007: 190–193). Early villas featured small bath suites, with some combination of *frigidarium*, *sudatorium*, *tepidarium*, and *caldarium*, that were always located next to the kitchen in order to share its heating apparatus, as seen in the Villa of the Mysteries and Oplontis Villa A. With the popularization and sophistication of the hypocaust and its independent heat source, designers started situating bathing facilities separately from the kitchen (Fabbricotti 1976), while

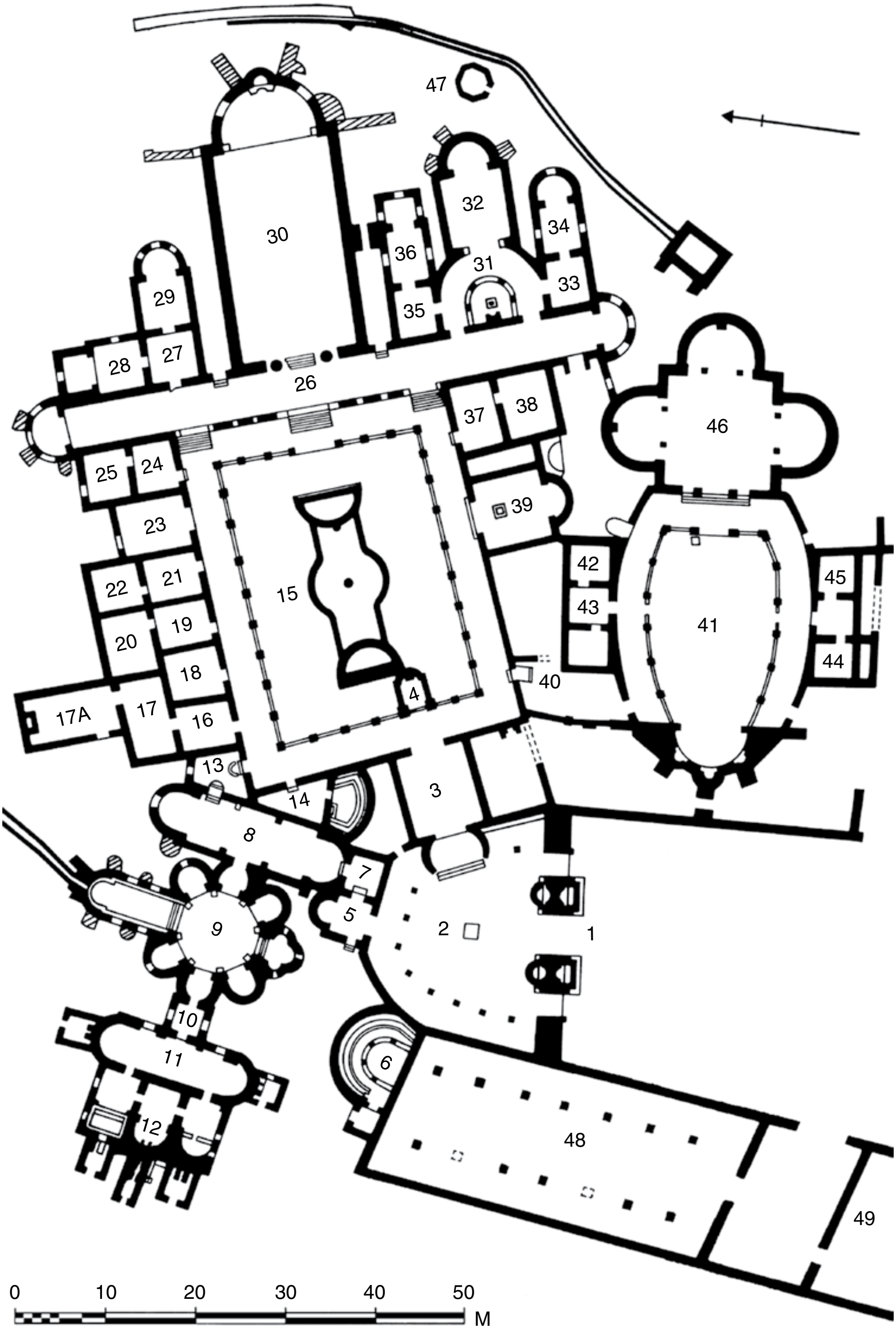


Figure 19.5 Villa at Piazza Armerina (Sicily), plan. *Source*: Wilson 2011, 56, fig. 1.

the prevalent bathing practices standardized the facilities to the succession of *frigidarium*, *tepidarium*, and *caldarium* (Yegül 1992: 50–57; 2010a: 94–97; see Chapter 16).

As the size of the bathing suites increased, they assumed an autonomous arrangement in villa designs. We notice that in cases where bathing suites were placed next to a peristyle-garden, they did not use the peristyle-garden itself for their outdoor functions. In Villa San Marco in Stabiae (first century BCE–first century CE; bath suite dating to the first century CE), for example, the bath suite was accessed from the peristyle-garden, while its own open-air *frigidarium* was situated in a small area at the other end (Barbet and Miniero 1999). Other notable examples include the Villa at Chiragan (baths dating from the first century CE) and the Villa at Centocelle "*ad duas Lauros*" (second/first century BCE–fifth century CE; baths dating to late second/early third century CE). The design solution of more open articulations of porticoes and gardens, as a variation to the peristyle-garden, certainly facilitated the design autonomy of bathing suites. Additionally, the construction technique of *opus caementicium* facilitated the creation of vaulted spaces, such as in the baths of the Villa at Piazza Armerina (nos. 9–12 on plan), that afforded views to and light from the outside due to the invention of blown glass (Broise 1991; see Chapter 9). In some cases the bathing suites were built completely independently of the main villa block, as seen in Villa Settefinestre (second-century-CE bathing complex), the villa at Nennig (second–third century CE), and the villa of the Maritime Odeon in Silin (second century CE; Salza Prina Ricotti 1970–1971: 140–147). The intimate nature of bathing practices and the practical considerations of their circulation pattern and heat economy were probably the reasons behind the autonomous arrangement of baths in the villa designs.

Finally, while the layouts of villas became more flexible to house the life within, the imperial network of marble supply enabled owners to adorn their villas in colored exotic marbles from all parts of the Empire. It was not only the Roman technological mastery of shaping nature or the agricultural productivity of the landscape that the villa and its spaces boasted, but also the imperial control of natural treasures. The carefully designed and marble-clad spaces of the villas were strong testimony to the technological and economical achievements of the Roman Empire as evidenced in the metaphors of imperial dominion in the ekphrastic exercises of Statius (cf. Stat. *Silv.* 2.2; Newlands 2002: 154–198).

As this brief overview of Roman villa architecture has suggested, the architectural expression of the villa was closely related to the aesthetic appreciation and agricultural exploitation of the landscape and was based on the technological achievements of the period as well as the imperial trade network of luxury art and raw materials. The villas were at first the product of the economic resources and the cultural stimuli that followed in the wake of the conquered

Hellenistic East. By transforming the simple farmsteads of their estates into luxurious edifices, Romans combined practical and aesthetic concerns and used both agricultural production and elegant design as complementary forms of display. The luxurious country house was one of the markers of elite status in the rapidly changing social structures of the wide-ranging Empire and became a vehicle of self-promotion and self-display. The sumptuously decorated interiors of the villas staged the owner during his elaborate dinner parties, and the monumental facades served the self-advertisement of their owners by marking the villas' presence in the landscape. The contemporary preoccupations with landscape as an aesthetic form impacted the design of the villas. The surrounding landscape posed new kinds of design possibilities, and architects created a distinctive design vocabulary of porticoes, gardens, monumental halls, and pavilions in response. In doing so, they created a novel design language that articulated an intentional dialogue with the landscape for the first time in western culture. In designing villas, Roman architects shaped a sophisticated interplay of architecture, art, and landscape, an interplay that Renaissance architects discovered and reinvented and that persists to this day (Ackerman 1993; MacDonald and Pinto 1995: 266–285, 306–330).

GUIDE TO FURTHER READING

For an overview of villa architecture with extensive bibliography, Gros (2001, vol. 2 in his monumental two-volume publication on Roman architecture) is the most comprehensive study. Förtsch (1993) examines the architectural components of villas as identified on the basis of the literary descriptions of Pliny, while Du Prey (1994) provides an overview of the architectural reception of Pliny's villa-letters. For a short introduction to the ways in which villa architecture related to life in the villas see the study of Mielsch (1987; Italian translation in 1990), which is mainly limited to Italian examples. Frazer's edited volume (1998) sums up some key aspects of the architecture, art, and life of the villas. For a specific study of maritime villas, see Lafon (2001). Grimal (1943) remains the authoritative study of Roman gardens, while Jashemski (1979; 1993) provides a regional perspective of the gardens in villas around Pompeii. For villas in the Italian peninsula, see Accardo (2000), De Franceschini (1998; 2005), Roffia (1997), and the volumes of *Forma Italiae*. Regional studies of provincial villas that provide an overview of their architecture include Rind (2009) for North Africa, Gorges (1979) and Fernández Castro (1982) for Spain, and Thomas (1964) for Panonnia. Smith (1997) provides a typological overview mainly of the northwestern provinces, but its sociological analysis is based largely on plans. For the social and economic aspects of the villa phenomenon, see Marzano (2007), who focuses on central Italy but addresses the entirety of the Italian peninsula. Purcell's articles (1987b; 1996) are key contributions in the study of the social and economic aspects of villas. For an overview of the wider implications of the villa phenomenon, Percival (1976) remains the most comprehensive overview.

CHAPTER TWENTY

Romanization

Louise Revell

Introduction: Interpreting Cultural Change and Material Culture

Romanization is a somewhat contested shorthand description for the process of cultural change evident within the material record of the Roman provinces. Residing within this is the assumption that the peoples of these regions were similarly changing their outlooks and practices to align with those of the City of Rome. Architecture has long been recognized as indicative of this process and the appearance of Roman-type buildings as evidence for the cultural change. Hand in hand with the spread of Roman power came a spread in Roman culture. There are few contemporary accounts of this process (see below), and so we are left with the material evidence to understand its occurrence. We see the adoption of Roman styles of building throughout the provinces, and their presence has stood as a marker for the success or failure of cultural assimilation of specific regions. This cultural change is particularly marked in the western half of the empire, where there was a very different building tradition prior to conquest. There was limited masonry architecture, which was largely confined to defensive walls and shrines. The settlement centers lacked the emphasis on public space and elaborate decoration that tends to characterize classical architecture. While in reality the evidence demonstrates considerable variability during the pre-Roman period, the ability to apparently juxtapose "Roman" and "non-Roman" architectural forms has meant that the process of change has seemed easier to detect here than in the eastern Empire, where there was very much a two-way interaction between

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Hellenistic and Roman culture. Nevertheless, it is also within the western provinces that we see the apparent simplicity of Romanization as a heuristic tool fall apart. In the last two decades, Romanization has become a contested term, to the extent that some archaeologists now see it as discredited (e.g., Woolf 1998; Mattingly 2002). Moreover, the former assertions that it was a positive thing – the adoption of civilization and superior cultural norms by the backward barbarians (classically, Haverfield 1915: 10; also Frere 1978: 342–375) – have been challenged with the post-modernist and post-colonial questioning of western cultural supremacy.

The relationship between architecture and Romanization can be traced back to Tacitus and the famous passage in the *Agricola* where he describes the governor's activities during the winter break from active campaigning:

> sequens hiems saluberrimis consiliis absumpta. namque id homines dispersi ac rudes eoque in bella faciles quieti et otio per voluptates adsuerscerunt, hortari privatim, adiuvare publice, ut templa foros domos extruerunt, laudando promptos, castigando segnis: ita honoris aemulatio pro necessitate erat.
>
> The following winter was taken up with beneficial projects. For so that men who were scattered and rustic and quick to battles might become accustomed to peace and leisure through the pleasures of life, he gave encouragement privately and assistance publicly so that they built temples, *fora*, and houses; and he praised the keen and chastized the tardy. In this way competition for honor took the place of compulsion. (*Agr.* 21.1)

This passage forms one of the very few explicit Roman statements of cultural change within the western provinces. It has been seen as evidence for an official policy of imposed cultural change (e.g., Hanson 1997). From this the terms of reference for the detection of Romanization are seemingly uncontentious. Certain building types and styles are labeled as Roman, in contrast to those of the pre-Roman culture, and stand as a proxy for the cultural identity of the person or society under investigation. The temptation is then to treat buildings as a measurable index for comparison of one region against another: for example, absolute number, or number of types, of public architecture to describe one region as more Romanized than another. Variation from the Roman archetype is then ascribed to the persistency of indigenous or pre-Roman traits. The model for this archetype is the architecture of imperial Rome and central Italy, and/or the writings of Vitruvius, which provide a set standard for "the Roman temple" or "the atrium house." The provinces are measured against a constructed ideal few would have seen or even been aware of, and whose appropriateness has been little questioned.

The idea of what we mean by Romanization has been subject to much archaeological re-examination since the publication of Millett's *The Romanization of*

Britain (1990b) and has led to a series of studies that proposed new models for the incorporation of the conquered peoples into the Roman system (Barrett 1997; Mattingly 1997; Terrenato 1998; Woolf 1998). Broadly speaking, the debate has moved from seeing Romanization as the inevitable spread of the more powerful culture to something that was the product of specific decisions and actions of people in the past, both the imperial authorities at Rome and the conquered inhabitants of the provinces. Due to new forms of governing and the consequent changing social structures of the local provincial communities, the people of the provinces adopted new social practices and daily routines, and new forms of material culture through which they enacted them. Romanization becomes the product of a series of strategies, adopted by those who were finding ways of living within shifting contexts of new political and social structures (Revell 2009).

Within this more agency-centered approach to Romanization, Roman-type buildings within a provincial context are no longer only markers of the process of cultural change, but play an active role within it (see Chapter 13). Human activity is communicative, and so the forms of material culture bound up within those actions are selected, however subconsciously, in order to communicate a specific message about an individual and society in general. In turn, the buildings are no longer a passive reflection of a new Romanized ethnicity, but are also bound up in the daily practices through which each individual reproduces that Roman identity, as well as other aspects of their social identity, such as their rank or their gender. This presents a challenge to modern research into the relationship between buildings and identity: charting presence or absence is no longer sufficient. Instead, we need to place the emphasis back onto the people inhabiting these spaces.

1. The Evidence: Potentials and Problems

One problem with exploring the question of Romanization is the nature of the evidence. We often have the image of Roman architecture as complete buildings, such as the Maison Carrée in Nîmes or the theater at Orange, perpetuated by the almost ubiquitous use of virtual reality computer reconstructions. However, in reality, such buildings are very much in the minority. For the most part, we are dependent upon the excavated remains of destroyed buildings. In the better preserved examples, we are dealing with ruined walls perhaps up to a meter high and a certain amount of the decoration intact; at its worst, we may be dealing with robbed out foundation trenches. There is an increasing use of geophysical survey in place of excavation, which has produced plans of whole buildings and even whole towns but lacks the clear picture of the various phases of their development. It is possible to use this

evidence to say that we have Romanized buildings where there were none previously, but as I shall demonstrate, that provides a very incomplete understanding of the process of change.

Early excavations of classical sites focused on the search for the buildings themselves, characterized by the production of a definitive plan of the building. Such plans often concentrated on a single phase of what was seen as the essential building. This led to excavation methods that concentrated on the walls, characterized as "wall-chasing": once a section of substantial wall was uncovered, the line was followed to produce the overall plan. Later modifications, and earlier phases, tended to be ignored in favor of the archetypal building. Similarly, the deposits within the rooms were left unexcavated, with the objects from within the rooms only of use as evidence for dates of construction and destruction. There was less attention to what they told us about how that space was decorated and the kinds of activities that were carried out there. The value of such material is demonstrated by the re-excavation of the forum-basilica at Silchester (Fulford and Timby 2000). The initial excavations were carried out during the nineteenth century and focused on producing as complete a plan of the building as possible. This was re-excavated by Fulford in the 1970s and 1980s to give a more complete picture of the development of the complex. These excavations revealed an earlier timber building that may represent a very early basilica structure, as well as a process of modifications during the construction of the later masonry basilica. The discovery of deposits of painted wall plaster has allowed an analysis of the differentiation of space within the basilica (Bird 2000), which has led to an interpretation of how the building was used to express the political power of the Roman magistrate (Revell 2007).

A more serious problem has been the fragmentary nature of many of the modern excavations. A significant number of Roman towns have either been continuously occupied or reoccupied at a later date. Excavation only becomes possible when there is new building work, and this often provides only a keyhole view of a small part of the building. Important provincial capitals, such as Cordoba, Tarragona, and London, have substantial post-Roman occupation, and so we are reliant upon building up a jigsaw puzzle of individual excavations to produce a plan of any single building. This is the case for the forum-basilica in London (Marsden 1987; Milne 1992a). The earliest discoveries took place in 1785, and the majority of the substantial excavations were carried out from 1880 through the 1980s. These excavations were on a series of discrete sites, and there have been ongoing problems putting them together accurately on a single plan, with errors of as much as 6 m. It was only with the publication of a series of excavations between 1983 and 1990 that the exact architectural form of the two phases of the building could be reconstructed with any certainty (Brigham 1992).

These circumstances produce certain methodological problems. There is the need to produce a whole from these partial remains, and this relies upon analogy. In most cases, we have a partial plan, with some architectural decoration, perhaps fragments of architectural sculpture, floorings, or wall paintings. We are forced to fill in the gaps in order to produce the complete building, and this requires a comparison with other examples. The problem comes in identifying the correct analogies, whether from the immediate region or further afield. With the increasing use of virtual reconstruction, it is possible to produce complete reconstructions of very partial buildings. However, all such reconstructions rest upon a series of choices on the part of the researcher about which buildings to use as the appropriate analogues (see Chapter 24). By choosing Roman analogies, there is a presupposition that cultural change has taken place, creating the possibility of circularity in then using the reconstructed building as evidence for Romanization. This becomes more acute within more recent theories of cultural change, based upon ideas of routinization and social practice, which rely on an understanding of how the buildings were actually used (Barrett 1997; Revell 1999; Gardner 2002). In reconstructing how these buildings were populated, we need to consider questions of how they were used: who had access to specific areas, at what times, and what activities they carried out there. We have a reasonably good idea of some of the answers for Rome itself from literary texts, but there is an ongoing debate as to how far we can apply these sources to sites outside of Rome (Allison 2001; Laurence 2004b). If we do apply these textual sources to the provinces, we are again in danger of creating elements of circularity in using the presence of specific types of buildings to indicate the adoption of Roman-style activities and, consequently, the process of cultural change.

2. The Development of Roman Architecture in the Western Provinces

In spite of these methodological problems, we can clearly see the adoption of Roman-style buildings within the western provinces. However, this is not a straightforward narrative of conquest being immediately followed by Romanization. Within Italy, the early development of Roman buildings is most evident in the *coloniae*, the new urban foundations sent out from Rome with a population of Roman citizens, such as Cosa in 273 BCE (Brown 1980). The well-excavated site shows evidence for a gridded layout, forum, and sacred precinct (the *arx*). This contrasts with other Italian towns such as Pompeii that were not founded *ex novo*. Although we do not know the exact date when Pompeii came under Roman authority, it was probably an ally of Rome from the time of the Samnite Wars (Zanker 1998). It was not founded

as a *colonia* until 81/80 BCE, when there was a settlement of Sullan veterans at the end of the Social War. Throughout the second century BCE, its architecture was more influenced by Hellenistic styles, particularly in the theater quarter where there was already a Greek influence with the so-called triangular forum and Doric temple. Additional Hellenistic-type buildings were constructed, including the theater itself, a peristyle behind the theater, a smaller *palaestra*, and the Temple to Isis and Zeus Meilichios (or possibly Asclepius). This trend is followed in the houses of the elite; the House of the Faun incorporated two peristyle courtyards and Hellenistic decoration including the Alexander mosaic and the Nilotic mosaics. The wall paintings similarly incorporate Hellenistic architectural motifs, such as columns, engaged columns, and false marble panelling. The only buildings that seem to look to Rome for cultural inspiration are those in the forum.

There was a similarly patchy development outside of Italy, and instead of the adoption of Roman building types, we see the continuity of local building traditions. This is the case in the Iberian peninsula and southern France, which were brought under Roman rule from the end of the Second Punic War onwards. In 197 BCE, we see the beginnings of a provincial administrative structure, with the creation of the provinces of Hispania Citerior and Ulterior, and the imposition of administrative and taxation systems (Richardson 1986: 75–79). However, we see only limited construction of Roman buildings. For example, at Italica, near Seville, pre-Roman occupation dates back to the fourth century BCE, and this received a settlement of Roman soldiers in 205 BCE (Rodríguez Hidalgo and Keay 1995). However, there is limited evidence for any immediate and substantial change in the architectural tradition; the only potential example is the structure at Cerro de los Palacios, which has been interpreted as a Capitolium (Bendala Galán 1982), although this has been disputed (Keay 1997). There is some evidence for a change in construction techniques, such as wider walls and the use of mortar bonding, but there is not enough excavated evidence to say how widespread this was. This also appears to be the case at Saguntum, where there was an Iberian settlement from the fifth century BCE, but the only Roman-style buildings constructed during the republican period were a podium temple and some form of building represented by an *exedra* associated with a series of cisterns (Aranegui Gascó 1992; 2006).

The key moment for the adoption of Roman architecture in Gaul and Iberia was the end of the first century BCE and the first century CE, from the reign of Augustus onwards (Keay 1995). We see a rapid process of new urban foundations and the incorporation of Roman-style buildings into them. In both Italica and Saguntum, there was a new phase of monumentalization with the remodeling of the public centers of both towns and the construction of

new buildings. At Italica, the central area of the town seems to have been remodeled, with a forum dating to the Augustan period and a theater to the Tiberian period (Keay 1997). At Saguntum, the central area also underwent a new phase of rebuilding, with the area around the temple being transformed into a closed forum with porticoes, basilica, and curia (Aranegui Gascó 1992). The republican temple formed the focus for the layout of the forum, although the *exedra* building was excluded. A theater was constructed nearby, producing a central zone of monumental public architecture. Similarly at Emporiae, the site of a Hellenistic city from the mid-sixth century BCE and Roman occupation from the end of the Second Punic War, the forum is only constructed during the Augustan period (Aquilué *et al.* 2006).

In contrast to this, in areas conquered following the death of Augustus, we do not see such a long hiatus before the construction of Roman buildings. The Claudian conquest of Britain began in 43 CE, and although it continued for a number of decades, within 20 years we see the construction of Roman public buildings. Colchester was founded around 50 CE, possibly as the provincial capital, and within a decade there was a Roman-style temple to the deified Claudius and up to four further public buildings (Crummy 1993). At Verulamium, the pre-Roman proto-urban center was transformed into a small urban settlement with some Roman-style buildings in the immediate post-conquest period, although the construction of public buildings such as the forum and the temple-theater complex did not occur until the 70s and 80s CE (Niblett 2001).

The reason behind this adoption of Roman architecture from the time of Augustus onwards needs to be located within the wider social, political, and administrative changes enacted by the emperor (Revell 2010). This period saw an alteration in the relationship between Rome and the conquered communities (Millett 1990a), with the local elites being given more responsibility in administration and financial affairs. Local towns became the center of this decentralized system, with new towns being founded as well as existing settlements being refounded with Roman urban charters. This gave the local elites a stake in the Roman system, with the ability to become part of an Empire-wide elite, gaining senatorial or equestrian status. This was the context for a series of cultural changes seen within the provincial communities, with the adoption of Roman forms of material more widely and Roman architecture in particular. The administrative reforms placed an emphasis on the urban centers, making them the focus of local community pride. At the same time, the local elites became Roman magistrates, exercising their authority within these urban centers and their own private houses and villas (Woolf 1998: 106–141). It is these socio-political changes that led to the development of Romanized architecture within the provinces.

3. Regionality in Provincial Architecture

Nevertheless, although we can see the Romanization of building styles from the Augustan period onwards, this does not result in the creation of a uniform architectural language throughout the western provinces or, indeed, the Empire as a whole (see Chapters 13, 15, 16, and 19). Instead, there are clear regional styles that show the influence of Rome, but not blind mimicry. This challenges any narrative of Romanization that argues the adoption of an unmediated copy of Roman architecture. While this variability is clear within the archaeological evidence, accounting for it is more problematic.

In some cases, this variability is the product of the persistence of pre-conquest building styles, for example, the domestic architecture in the Lower Rhine area. Here there is a continuation of the local pre-Roman building style into the Roman period (Roymans 1995). The pre-conquest housing consisted of a long rectangular-style house of timber, post-built construction (Figure 20.1). These were divided into two parts (not necessarily equal in size), usually with two opposing entrances. One side was the family's domestic quarters and the other a stable or byre for livestock. This type of housing continues into the Roman period, with Romanized villas very rare in the Lower Rhine area, although they were adopted in the adjacent areas. However, this does not mean that they remained unchanged. In some cases, the owners added a wooden *porticus* or a tiled roof and in others,

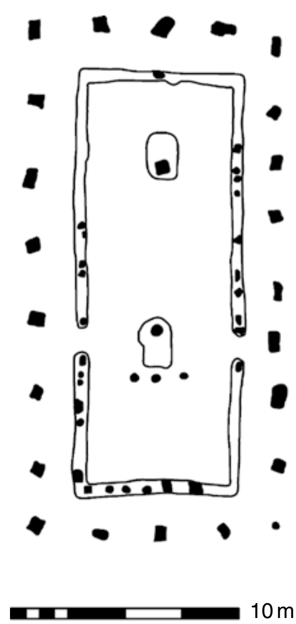


Figure 20.1 Plan of house 12, Druten. *Source*: S. Hakenbeck after Roymans 1995: fig. 4.

more substantial features, such as stone foundations, hypocausts, and wall painting; at both ends of the range, the long, rectangular style of house continues. Such buildings display clear continuity of the basic building style but with the incorporation of Roman elements of architectural decoration. As there is no evidence for a substantial incoming population, it is likely that what we are witnessing is the adaptation of the indigenous building style by the local inhabitants to reflect the new cultural context. Differences within the levels of these new architectural elements could well reflect the use of this new material culture to distinguish between elites and non-elites within these communities.

An alternative explanation for regional distinctiveness is that architectural styles were adopted from the military sphere, an argument that has been applied to Roman Britain in particular. In Atkinson's publication of the forum-basilica at Wroxeter (Figure 20.2), he argued that the apparently unusual form of the Romano-British forum was due to the imitation of the *principia* of military forts and fortresses (Atkinson 1942). This was almost immediately disputed by Goodchild, who argued that they were instead a variant on the double-precinct forum-basilica found in the Gallic provinces (Goodchild 1946). Similarly, Shepherd Frere has argued that the row of shops and houses in Insula 14 at Verulamium copied military barrack blocks in form and building technique (Frere 1972: 10–11). He compares them to the timber framework of the Claudian fort at Valkenberg and suggests that they were the product of military architects and craftsmen, with the possibility that the timber itself may have been from military stocks. As with the forum-basilica, this argument has proved controversial and has been repudiated by Millett (1990a), on the basis of the structural layout, and Blagg (1984), based on architectural style.

In accounting for this regional variability, it is very easy to set up a binary opposition between "Roman" and "native" and to plot the variability as the blending of these essential types. However, the Mediterranean had long been a melting pot of cultural influences, and at the same time as the Roman Empire was expanding, there were strong alternative cultural models. Among these were the kingdoms of Hellenistic Greece and the eastern Mediterranean. Hellenistic culture had already had an impact on the western Mediterranean and can be seen in housing styles in southern Gaul. At Glanum, the second-century-BCE Maison des Antes echoes the Hellenistic housing styles, with a central peristyle forming the heart of the house (Salviat 1990). At Vaison-la-Romaine, the first phase of the Maison au Dauphin, dating to the second half of the first century BCE, was arranged around a large peristyle (Goudineau 1979). Whether this Greek influence on southern France was due to the presence of the Greek colony at Marseille or the wider third- and second-century-BCE Hellenistic influence on Mediterranean culture is subject to debate, but nevertheless, it does demonstrate problems with a binary Roman–indigenous explanation for regional typologies. Another source of inspiration

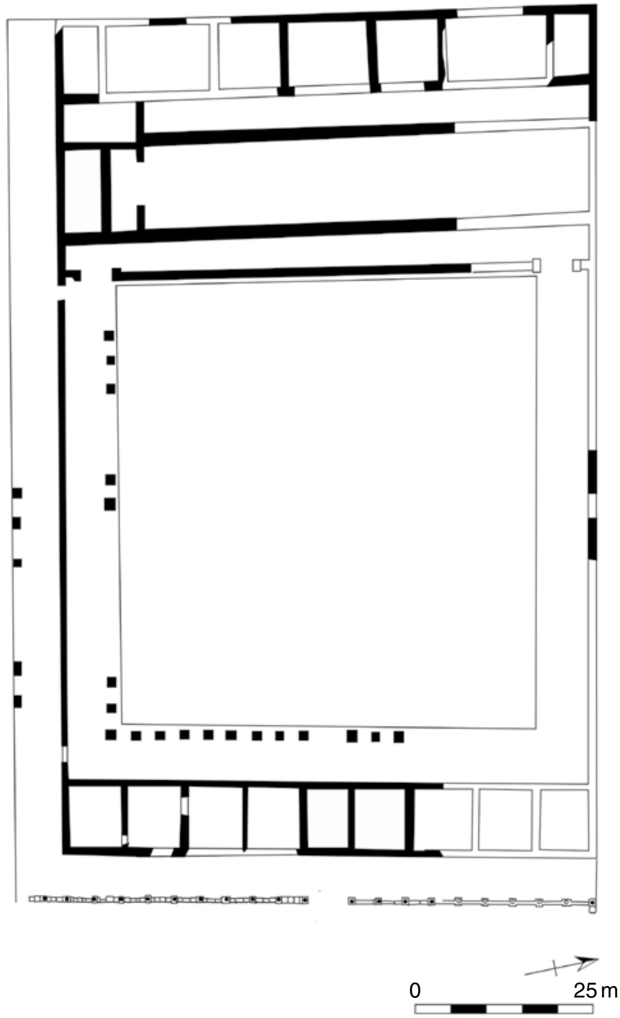


Figure 20.2 Plan of the forum, Wroxeter. *Source*: P. Copeland after Atkinson 1942.

in Gallic architecture comes from northern Italy (Ward-Perkins 1970); when monumental public architecture develops from the Augustan period onwards, the models are not from Rome itself, but rather from northern Italy. A third influence on the western Mediterranean was Carthage and Punic culture. Work on the island of Sardinia, for example, has demonstrated that, even after conquest by Rome, the inhabitants continued to look to Carthage for cultural models in both architectural and ceramic styles (Van Dommelen 1998); and at Pompeii, evidence of *opus africanum* has been ascribed to a Carthaginian origin (Adam 1994a: 120–121). On the other hand, it is important not to think of Rome as somehow immune to such cultural influences. Andrew

Wallace-Hadrill has recently argued that architectural styles at Rome did not arise in isolation, but rather within the context of a complex interplay between Italic and Greek/Hellenistic cultural influences (Wallace-Hadrill 2008b). Buildings we think of as characteristically Roman may have developed elsewhere before being adopted in Rome. The amphitheater is the best example of this. The earliest masonry examples are from Campania, and it seems that they then spread to Rome itself (Golvin 1988; see Chapter 15). Similarly, masonry theaters seem to have originated in Greece and then spread to southern Italy and Campania prior to their appearance in Rome (Sear 2006: 48–67; see Chapter 15).

Architectural change takes place within this complex cultural mix, making it a messy process that cannot be reduced to a simple description of the replacement of indigenous types with those derived from Rome. Recent research on material culture more broadly has pointed to regional populations adopting new types of artifacts appropriate to the shifting social context but producing something original. One example of these regional types is the so-called Jupiter column found throughout the Germanic, northern Gallic, and British provinces (Woolf 2001). These free-standing columns adopt the Roman architectural and iconographic vocabulary but adapt them to produce something regionally distinctive. In other instances, we see the producers of sculptural reliefs looking for alternative sources of inspiration. One example of this is the *Totenmahl* relief, a stele depicting the funerary banquet, which was adopted along the Danube–Rhine region but originated amongst the Greek cities of the Black Sea (Stewart 2009; 2010). These two examples effectively decenter Rome as the source of Roman-ness and instead look to a knowledgeable and purposeful process within the immediate context. As Stewart argues, Rome is the catalyst for the adoption of these new forms of material, but not the source of the type itself. Romanization represents the adoption of new discourses; to become Roman was not to accept such a discourse, but to enter into it as a knowledgeable participant (Woolf 1998; Revell 2009).

The development of new architectural styles was a response to the new socio-political and cultural context, and this allows us to understand provincial types that do not seem to accord to our typologies of Roman architecture derived from Rome. Within the Gallic, German, and British provinces, we see forms of public architecture that do not accord with typologies apparent at the heart of the Empire, but which nevertheless represent a shift from the indigenous building styles. In the four Gallic provinces, theaters can be divided into two main types: the classical Roman-style theater, which shares close affinities to those in northern and central Italy, and the so-called Gallo-Roman theater (Sear 2006: 98–100). In the case of the latter, the *cavea* usually extended beyond the semicircle, and the stage

was smaller than the width of the *cavea* and usually lacked the *scaenae frons* (Gros 1996a: 294–298; see Chapter 15). These are the more common types in northern Gaul, Germany, and Britain. There was no precursor for these theaters before conquest; therefore they should be interpreted as a regional response to the demand for a new architectural form. A similar development can be seen in the case of the Romano-Celtic temple, which has a similar distribution. While it adopts the idea of the shrine itself and the vocabulary of the Roman temple, in terms of the use of columns, pedimental porches, and surrounding porticoes, it was usually smaller, and the form varied between square, rectangular, circular, or polygonal (Lewis 1966; Faudet 1993; Gros 1996a: 199–203). As with the Gallo-Roman theater, it demonstrates the need for a new architectural form, in this case the need for a dedicated architectural space for ritual worship, but the result is a regionally distinctive type. This warns against accounting for regional differences as the continuity of pre-Roman traits or the creation of a hybrid type. Instead, we need to think of the peoples of these regions as engaging with Roman forms in a more dynamic and purposeful manner, which leads to the creation of their own take on Roman architectural forms.

4. A Different Approach to Provincial Architecture

This rejection of a binary opposition between Roman and indigenous questions how far we can use typologies as a basic methodology for understanding cultural change within the provinces: was Romanization adopting some form of ideal type of Roman material culture, or did it mean using architectural forms in a manner that accorded with similar precepts to those in Rome? Recent approaches to the process of cultural change have argued that the adoption of new forms of ideologies, beliefs, and behaviors bound to the changing social systems was more important (Hill 1997; Häussler 1998; Woolf 1998; Revell 2009). For the people of the provinces, part of becoming Roman was learning new ideologies of power and new forms of material culture through which to express them. This places the ideas and practices at the forefront, rather than the authenticity of the typology. The expression of identity is not fixed and stable, but essentially localized and contingent. Material culture is used as a mode of communication, and the underlying message being communicated is as important as the material form it takes. In other words, when looking at architecture as part evidence for changing ethnic identity, we need to move away from precise typologies and think about the ways in which the buildings acted as a means to position their inhabitants within these complex webs of social identity.

In order to explore this different approach, I will use elite urban housing as a case study. The terms of reference have largely been derived from Vitruvius and his discussion of the atrium house in Book 6 of *De Architectura*. This has led some archaeologists to use the atrium as the diagnostic indicator of Roman housing within a provincial context. For example, interpretations of Casa de los Plintos in Uxama in northern Spain have been based on trying to identify the atrium and *tablinum* (García Merino 1991). Within this reconstruction, room 1 is identified as an atrium, even though it lacks the preceding *fauces* and an *impluvium*, and room 3 as a possible *tablinum*. The excavator argues that this layout adheres to the form of the atrium house but was adapted to the different climatic context. When we look at the textual sources from Rome other than Vitruvius, such as the works of Cicero, Petronius's description of Trimalchio's feast, or Pliny's descriptions of his rural villas, we are immediately struck by the lack of concern about house typology as seen in Vitruvius. Instead, these other writers are more interested in the way the house forms an expression of their elite identity (Wiseman 1987). Cicero, when outlining to his son how to be a good magistrate, saw the house as an expression of the magistrate's rank (Cic. *de Off.* 1.138–140). The house was a place where a magistrate could entertain guests and receive crowds of every rank of person, and where a man was on display to both his peers and those of more lowly status. The idea of the house as the stage for political activity has been illustrated in the analysis of Pompeian houses by Wallace-Hadrill (Wallace-Hadrill 1994). He has argued that the importance of the house is tied in with political rituals, such as the daily *salutatio* and elaborate dining. The form, layout, and decoration of the house provide a series of indicators about the status of the owner, but also of the guests and the other inhabitants of the house, such as the wider family and the slaves (similarly, Clarke 1991: 1–29; see Chapter 18).

When analyzing the domestic architecture of the provinces, we need to rephrase our underlying questions about how we identify the process of cultural change. Rather than looking for a specific type of Roman house, we should instead be looking at whether domestic architecture is being used in a similar way: that is, whether the underlying discourses of elite houses were being adopted, and whether they were being used to convey the same social meaning. It is possible to distill from the textual sources an idea of the principles underpinning that discourse. As the elite house was the setting for certain forms of political activity, in essence an intersection between public and private space, large, easily accessible areas were needed for receiving guests and enacting political business (Thébert 1993). In addition, there should be other spaces, similarly public but more discreet and less accessible, for the reception of more privileged political guests, such as fellow magistrates. The house should be an expression of the wealth and prestige of the owner, displayed through the architectural elements, such as columns and

gardens, and the decoration with the use of marble, wall paintings, and mosaics. These elements should also be a display of the learning of the owner, such as his knowledge of myth and his ability to place them in appropriate places (Elsner 1998: 106–113). Finally, as the house was an extension of public space, it should adopt the vocabulary of public architecture, through provision of colonnades, baths, and, in some cases, honorific inscriptions to the owner (see Chapter 18).

In the Iberian peninsula and southern Gaul, the axial peristyle house organized around a central axis of vestibule-peristyle-large reception room was the dominant form of elite housing (Meyer 1999). Although there was some variability in precise layout, it formed the basic core of elite town houses in these provinces. At Italica in Baetica, the most complete houses date to the early second century CE (Rodríguez Hidalgo and Keay 1995). The smallest of these, and the least complex in layout, is Casa de los Pájaros (Rodríguez Hidalgo 1991; Figure 20.3). The colonnaded peristyle covered 25% of the floor space of the house and held a water feature at the center. A series of rooms led off it on two sides, with the *triclinium* and two further courts on the third. Of the rooms leading directly from the peristyle, the room with the mosaic of the birds was probably the most important, marked out by its decoration and its position at the center of the range and on the central point of the peristyle-garden. The room on the central axis is the largest room in the house and has traces of marble on the walls. It is traditionally identified as the *triclinium*, and if this is not correct, it was certainly the most important reception room. This room seems to have overlooked an open area to each side, each with a central water feature surrounded by further suites of rooms. The north court was a colonnaded area with a central water feature and fountain. The south court is set around a pool and comprises a series of apparently richer rooms, decorated with elaborate mosaics, which include depictions of Tellus and Medusa (Mañas Romero 2010).

We see similar characteristics in the other houses in Italica. Although the known plan is incomplete, Casa de Hylas clearly incorporates the same open spaces of the peristyles and large reception rooms (Garcia y Bellido 1960; Rueda Roigé 2002/2003). The layout is more complex, lacking the simple axiality evident at Casa de los Pájaros, but there is the potential for zoning and social differentiation. Elaborate mosaics decorate key reception rooms and include images of the rapes of Hylas and Ganymede, the Seasons, and possibly a Bacchic motif (Mañas Romero 2010). Other elements that show an adherence to the demonstration of wealth and the language of public architecture include marble column bases, Corinthian capitals, and water features. The largest known house in Italica is Casa de la Exedra. The level of opulence within this house has led to the argument

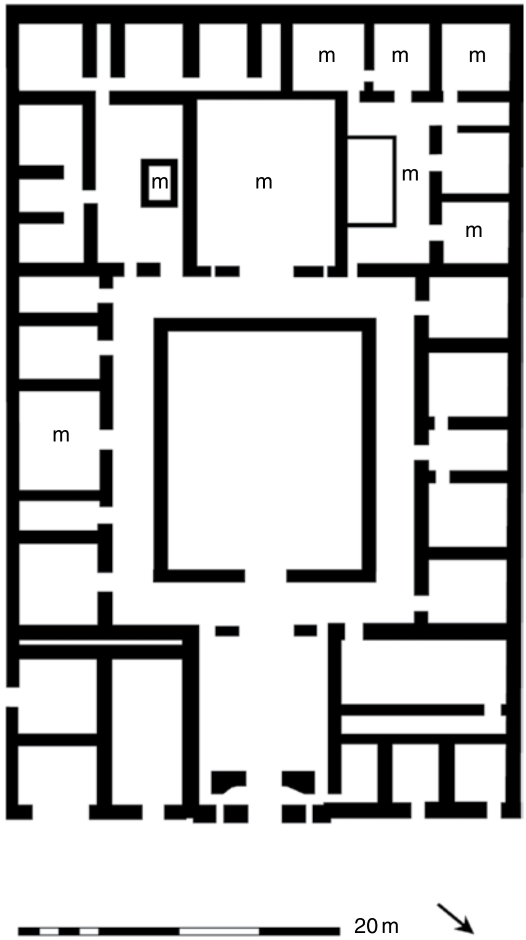


Figure 20.3 Plan of the Casa de los Pájaros, Italica. Location of mosaics shown (m). *Source*: S. Hakenbeck after Mañas Romero 2010: fig. 15.

that it is a semi-public building rather than a private building (Rodríguez Hidalgo 1991). However, it does show many of the same elements, in spite of its more complex plan. Again, it has large public rooms arranged according to principles of symmetry and axiality. There is a clear demonstration of wealth in the space: the gardens, the use of water, and the elaborate decoration, such as mosaics and marble. Facilities echo those of public architecture, particularly the private baths suite and *exedra*, as do decorative features, such as the use of marble and the Corinthian capitals in the north court.

These houses in Italica share a common language of domestic architecture with those in Italy (see Chapter 18). They display an ordered layout based around ideas of axes through the building and roughly symmetrical

arrangements of rooms. All show a hierarchy of space in decoration and areas of relative public–private access, allowing the possibility of distinguishing between visitors. The emphasis on the open spaces of the peristyle, gardens, and water features creates the potential for specific vistas and an adherence to the ideals of *otium*. There is a demonstration of wealth through facilities and decoration, particularly in the use of marble, elements of which echo the characteristics of public architecture. The iconography on the mosaics represents a display of learning, with mythological scenes such as Medusa or Bacchic designs. Certain mosaics set specific myths against each other, relying on the viewer to understand the connections between them. A single mosaic in the Casa del Mosaico de las Metamorfosis contains a series of panels depicting myths such as Leda and the swan, Europa and the bull, the rape of Ganymede, and Danae and the golden shower (Mañas Romero 2010: 215–216, cat. CMM3).

These are characteristics that we see repeated at the houses in the town of Vaison-la-Romaine in Narbonensis (Goudineau and Kisch 1999). Here a series of large town houses have been excavated. Again, they adhere broadly to the axial peristyle type, but their overall layouts are more complex. The axiality is less clear, with no evidence of the vistas through the house from the entrance. However, once inside the house, we do see the idea of axes and vistas becoming important. In the Maison au Dauphin, the focus of the house is on the large peristyle-garden (Goudineau 1979; Figure 20.4). Here we see the juncture of two axes at right angles to each other: the axis through from the entrance into the peristyle and the axis formed by the rooms of the peristyle area. There is a pool at the center of the peristyle with a pair of reception rooms facing each other across it, their entrances aligned with the intercolumniation of the peristyle. One was an *exedra*, and the other overlooked the northern portico of a second garden and its pool. This emphasis on peristyles, gardens, and water features is repeated in all of the houses at Vaison, such as Maison à la Tonelle, which had an external room set in the garden, perhaps used as a dining room.

In both Italica and Vaison-la-Romaine, it is possible to identify the adoption of a similar discourse of domestic architecture in spite of any differences in the precise layout of the houses themselves. They demonstrate an understanding of the role of domestic housing in signaling elite status similar to that in Rome. Their appearance can be explained through the changes in the social organization, with the local pre-Roman elites adopting urban magistracies as a way to maintain their social standing within the new imperial context (Millett 1990a). New forms of material, such as the houses and their contents, allowed them to continue to set themselves apart from the rest of the local populace, while demonstrating to the provincial and imperial elites their membership in that particular social class. Their houses form the physical embodiment of their understanding of the correct attitudes and postures expected of their new social position.

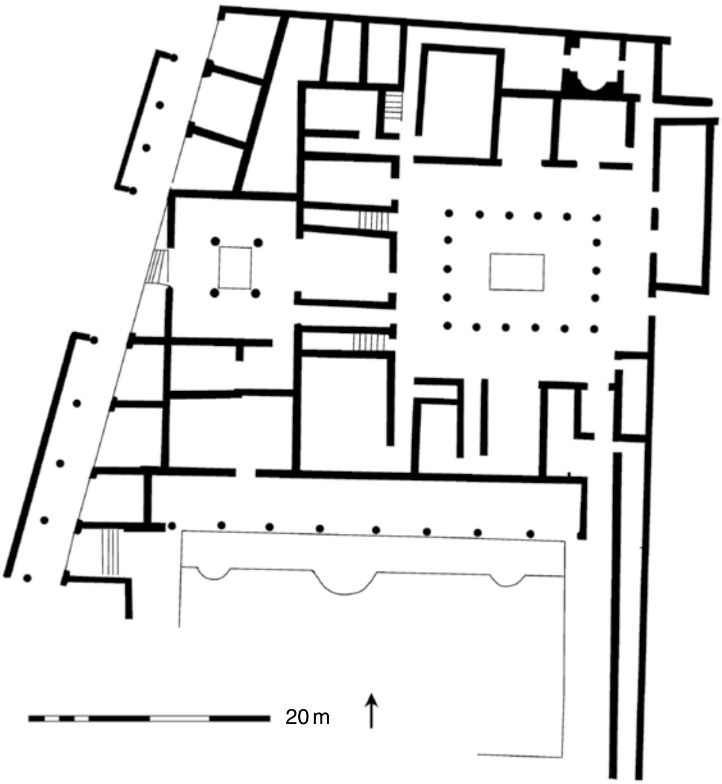


Figure 20.4 Plan of the Maison au Dauphin, Vaison-la-Romaine, second century CE. *Source*: S. Hakenbeck after Goudineau and Kisch 1999: 34.

5. Conclusions

The impact of Roman cultural forms on its subject provinces is represented through the changing forms of buildings and architectural traditions. However, as the models we use to understand these changes develop, so do the ways we approach the evidence of the buildings themselves. It is tempting to use their appearance as an indicator or proxy for the changes the people of the provinces were going through, but such forms of analysis are too often accompanied by the construction of polar oppositions between Roman and non-Roman. The architectural evidence demonstrates clear regionality in the types of buildings, which defies attempts at such binary classification. As we have developed more critical and people-centered theories of cultural change, we have started to problematize the evidence. Instead of looking for strict adherence to pre-ordained types, we are now starting to look for the underlying ideologies and discourses embodied within the fabric of the buildings and the forms of behaviors and practices they enabled. It places the emphasis

firmly on the people of the provinces, setting their adoption of certain building types and their creation of regional forms at the forefront. Typologies cease to be an end in themselves, but instead become a way to understand regional variability and the way in which the provincial populations responded to the new imperial context.

GUIDE TO FURTHER READING

The literature on Romanization is vast and, at times, polemical. For the various approaches that have developed over the last two decades, see Millett (1990b), Alcock (1993), Woolf (1998), Ando (2000), Webster (2001), Mattingly (2004), and collected papers in Mattingly (ed.) (1997) and Keay and Terrenato (eds.) (2001). Most of these discuss cultural change in general terms, but for works that concentrate on buildings and architecture in particular, see Macready and Thompson (1987), Häussler (1998), Zanker (1998), Revell (2009), and Laurence, Esmonde Cleary, and Sears (2011). The most comprehensive discussion of variability in architecture in the western provinces is Gros (1996a; 2001).

CHAPTER TWENTY-ONE

Streets and Facades

Ray Laurence

Introduction

Streets have been a subject that is often omitted from the discussion of Roman architecture. The discussion tends to focus on a single building or a complex of buildings and the process of the design and creation of a new building in a Roman city. Yet, the street is a fundamental structure that needs to be considered when examining architecture. For example, the building by Trajan of a new set of *thermae* (baths) on the site of the Golden House of Nero was integrated into the existing street pattern. Today, the effect of this new building on a neighborhood can be understood with reference to the Severan Marble Plan (*Forma Urbis Marmorea Romae*) surviving from the third century CE in fragments and which can be examined on Stanford University's website (http://formaurbis.stanford.edu/). What the Marble Plan allows us to do is see the intersection between monuments and streets, and this leads us to some consideration of their relationship. The numerous archaeological sites across Europe, the Mediterranean, and the Near East also provide us with considerable information with reference to streets in the Roman Empire. The level of detail varies from sites such as Pompeii, Ostia, or Lepcis Magna to geophysical surveys, such as that of Falerii Novi (Keay *et al.* 2000), or the simple recovery of a street network (Bedon 1999) on a partially excavated site. Over the last decade, there has been an increase in interest in the analysis of the Roman street. Most of that interest has been focused on the study of Pompeii, which is reflected in this chapter. However,

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we can expect in the future a broadening of the study of streets to include a far greater number of cities from the Roman Empire.

1. The Layout of Streets

Roman towns and cities come in a variety of forms. Some have walls around the inhabited space (e.g., Falerii Novi from 241 BCE), others have no walls (e.g., Jublains of the first to second century CE), and some expanded beyond the original walled area (e.g., Timgad, from 100 CE). However, a key characteristic of nearly all towns and cities is an emphasis on streets that tend to be straight and meet one another at right angles to create a series of crossroads throughout the city. The straightness of a street created a visual emphasis on a vanishing point to which a person moved through the city in its elusive direction (Figure 21.1). What interrupted this form of movement was the crossroad, which in turn presented to the person moving across the city alternative straight streets leading to other visual destinations. The straightness of streets was an enduring feature of Roman cities, but had some chronological variation. This can be seen very clearly in the plan of Italica in Spain (Figure 21.2). The city founded, according to literary sources (App. *Hisp.*



Figure 21.1 Pompeii, street intersection (note small crossroad altar). *Source*: Laurence.

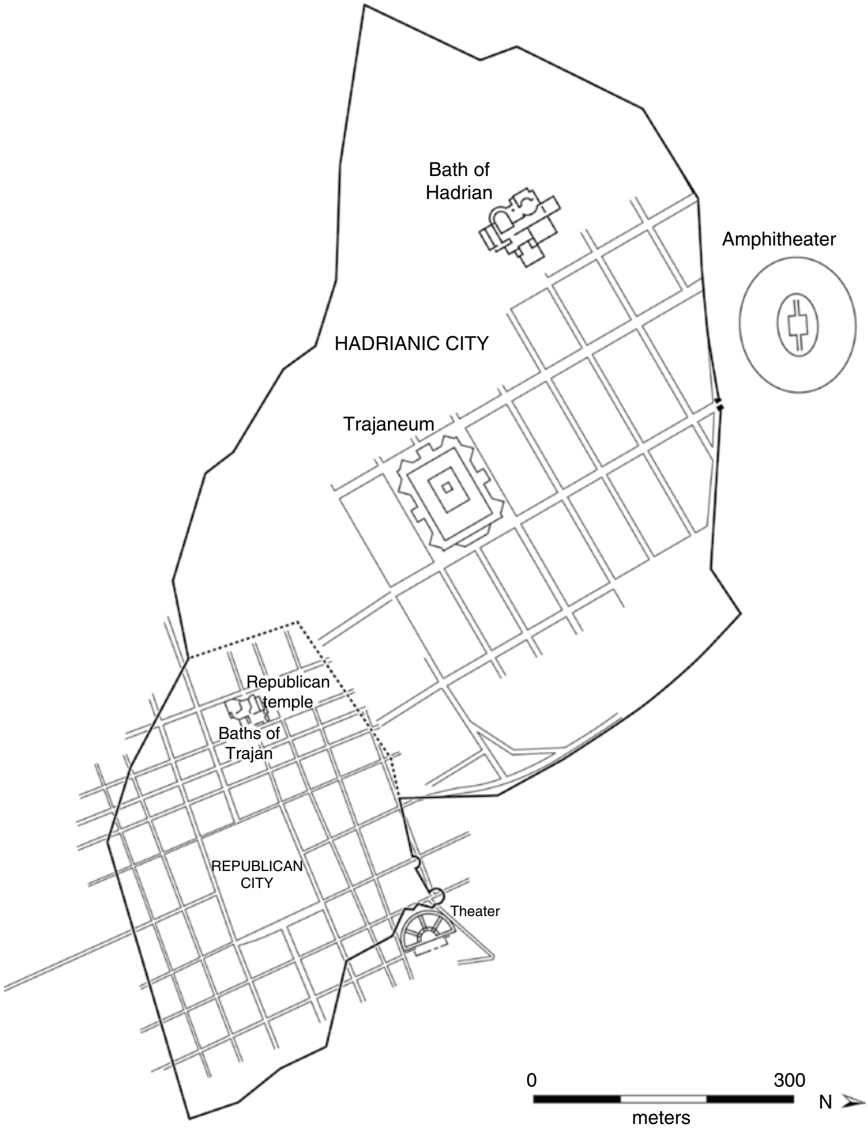


Figure 21.2 Italica (Spain), the extension of the grid of streets under Hadrian. *Source*: H. Buglass after Keay 1998: fig. 11.

38) in the final years of the third century BCE, was originally fairly small (13.5 hectares) overlying an earlier Turditanian settlement, but was expanded under the emperor Hadrian in the second century CE in recognition of the site as the birthplace of the emperor Trajan. The expansion of the city included new walls, new streets, new monuments (an amphitheater for 25,000 spectators, large *thermae*, and an imposing Temple of Trajan) and added an additional 30 hectares to the city. More than two thirds of the Hadrianic city was

comprised of this expanded area (Boatwright 1997). All the streets met at right angles in the new part of the city, just as the streets had met at right angles in the earlier part of the city. What had changed, however, was the scale. In the new part of the city, streets were wider, and the distance between crossroads was greater to facilitate larger plots on which to build public buildings and residential structures.

However, there was not just a change in scale. Importantly, the new streets connect the major monuments together and were integrated with the monuments in their design – for example, the street running from the amphitheater across the new part of the city, passing the Temple of Trajan, joining onto the original grid plan of the earlier part of the city, and leading ultimately to an intersection with the *decumanus maximus*, which itself led to the original grid of streets and to the original forum of Italica. This form of street structure can be found at a number of well-preserved cities right across the Mediterranean and was defined as a key feature of Roman urbanism by William MacDonald (1986), which he called an urban "armature." Such armatures can be defined as the principle streets of any city on which public monuments (baths, theaters, amphitheaters), temples, and arches tended to be built. This feature caused the grid of streets to develop distinctive routes through it. It has to be said that most armatures, unlike that of Italica, were not so much designed but were developed piecemeal along a key route through the city, much as in London today, for example, where we find that new prestige buildings have been located along the route of the annual London Marathon. MacDonald (1986) observed that within the grid of streets in a Roman city at least one street was preferred as the location for major architectural projects. For the most part, these streets lead from the edge of the grid (often a gate in the city wall) to its center (often the forum). What is true of the cities of the Empire was also true of Rome, where we can find major streets (*viae*) leading across the city and side streets (*vici*) joining these major streets. The straightness of these streets is apparent, but the grid is more difficult to define in Rome due to the urban topography being broken up by the presence of the Capitoline, Palatine, and Aventine Hills at the center of the city. Nevertheless, the same logic of connection can be found there (Laurence 2008).

2. The Surface and the Width of Streets

The paved surface of streets in Roman cities of the Mediterranean tends to be taken for granted (Figure 21.1). However, even in Rome, it was not until 174 BCE (Livy 41.27.5) that the main streets (*viae*) of the city were to be paved in hard stone (*silex*), whereas the roads outside the city (with the exception of the Via Appia for a short section to Bovillae) were covered with

gravel. At the same time, in the colony of Pisaurum, streets were paved using the same type of material (*silex*) as that used in Rome (Livy 41.27.11–12). Livy's text (41.27.5) also sets out that sidewalks along the sides of roads and streets were created for the first time in 174 BCE (Laurence 2004a). There are other parts of Rome that were paved in this year, including the Clivus Capitolinus. What is important for our understanding of architecture was that from this point onwards, movement in the cities was facilitated by the architecture of streets that includes a space for traffic and a space for pedestrians; and that the surface on which people walked or rode on horseback or in carriages was smooth and probably also dry. Not all towns and cities featured paved streets like those of Rome, but this was an aspiration and plenty of examples have been located (e.g., *CIL* 10.5204, 11.6126–6127, 14.375). The ubiquity of the paved street can be revealed by a visit to Ostia or Pompeii, to which paving materials were transported over some distance for such a purpose (Black, Browning, and Laurence 2009). In central Italy, basalt was the preferred stone for road surfaces, but limestone was also used (Pliny *HN* 36.135, 36.167–170). The paving of streets in stone should not be underestimated. As historians of the eighteenth century have found (McNeil and Riello 2005), the paving of streets altered the way people used the city, their types of shoes, and a whole range of other features that we can also associate with urban culture in the Roman Empire, probably including movement while wearing a toga. Another key attribute was the need to keep feet dry or free of dirt, which was facilitated by the separation of the paved road associated often with pack animals and carriages and, in Pompeii, by a series of stepping stones that linked the sidewalks in order to ensure that the pedestrian could avoid stepping onto/into the surface of the road and its associated detritus (Figure 21.1; on sidewalks, see Saliou 1999 for survey in Pompeii).

We have already observed the difference in scale between new Hadrianic streets in Italica and their predecessors. This change can also be found in Tacitus's representation of the rebuilding of Rome after the fire of 64 CE (*Ann.* 15.43). The streets were now wider and had colonnades built between the roadway and the buildings that faced onto the streets, while the heights of the new buildings were regulated to be lower than those that had been destroyed by the fire. There was also an increase in the number of public water fountains. The contrast was made by Tacitus with the former narrow streets and tall buildings into which the sun seldom penetrated. There is a fundamental architectural change identified by Tacitus, by which the street becomes wider and the roadway hotter, while colonnades provide shade for foot-traffic. It results in a greater separation of the pedestrian from the traffic of the roadway. Not every city could adapt its streets to this new architectural form, and in a brief survey, MacDonald (1986: 33–51; see also van Tilburg 2007: 29–31)

has set out the dimensional variation of the major streets of a number of cities. Pompeii's Via dell'Abbondanza could vary in width from 7 to 14 m, whereas the Via Flaminia, once it entered Rome, was found to be 21 m in width, hence referred to as the Via Lata. A new Severan street in Lepcis Magna was constructed at a width of 42 m, whereas a street in Trajanic Timgad was 7 m in width. The variation is considerable and differentiates the basic street at 7 m in width from the monumental streets associated with the larger imperial cities of the Empire and often undertaken as projects funded by the emperor, whether in Rome, in Italica, or in Lepcis Magna.

The narrower streets, such as those of Pompeii, with ruts in their surface made by the abrasion of wheels on wagons and carts, are a reminder to all visitors that the concept of two-way traffic in which vehicles pass on either side of a street should not simply be taken for granted. Eric Poehler (2006) conducted a very detailed survey of all the ruts and signs of erosion of road surfaces and curbstones in Pompeii. He observed that the erosion patterns at crossroads could be used to identify the dominant direction in which traffic circulated. The streets in the grid wide enough to accommodate two-way traffic were the major routes leading to the city gates, whereas the side streets were associated, according to Poehler, with one-way traffic. However, the latter is not entirely convincing since the level of traffic in these streets was much lower and may simply be a reflection of the incidence of wear associated with that traffic rather than any sort of "circulation system." Moreover, Pierre Salama (1992), in a study of circulation in Timgad (Thamugadi, early second century CE), has suggested that "ruts" were deliberately cut into the paving of streets to facilitate the passage of vehicles. What is perhaps more important from Poehler's study of Pompeii is that traffic was directed to certain streets due to the width of those streets, a point reinforced by the closure of numerous streets in Pompeii to vehicle traffic (Laurence 2007: 52–54). This factor would have caused a greater concentration of wheeled traffic in the wider streets.

Finally, to relate width to the surfaces of streets, it was in these more prominent streets (or armatures) of the city grid that the elite chose to spend their money on paving in the initial phases of creating durable surfaces for urban traffic over stretches ranging from a few hundred to over a thousand meters (*CIL* 11.3083, 3384, 6126–6128). These stretches of road connected prominent points of the city (which also had an economic significance): in Puteoli, running from the forum or leading to the emporium or port (*CIL* 10.1698); similar treatment can also be found at Cales (*CIL* 10.4660). These paved streets were associated with wheeled traffic (Ulp. 43.11.1–3; Fronto *Ep.* 5.40). The adoption of such a surface on the wider streets caused the need for sidewalks for pedestrians along those streets with a higher traffic flow. In Pompeii and Ostia, the number of paved streets expanded to include the narrower streets or alleyways

(*angiportus*) – perhaps a reflection of the expansion of wheeled traffic. There is clear evidence of this occurring elsewhere (*AE* 2002: 372). However, there is still a differentiation of these narrow streets from the main routes (termed "*viae*" in antiquity and "armatures" by MacDonald 1986; see Wallace-Hadrill 2003 on the distinction).

3. Facades of Buildings and Streets

So far, our focus has been on the street itself in terms of width and surface, but there is more to the street than just this. The buildings that formed a vertical edge to the linear space of the street in many ways define the nature of the street. In the study of Roman architecture, these facades or the very public front of houses and shops are often neglected in favor of the internal arrangement of space within the structures (Ling 1997). Facades, where they do survive, reveal an additional architectural quality of a street. Facades should be seen to define space; for example, the House of the Ceii in Pompeii is distinguished from its neighbors by a plaster facade that creates a unity for the house while at the same time resembling masonry blocks (Figure 21.3). The facade of each building would have indicated not so much the beginning



Figure 21.3 Pompeii, House of the Ceii. Plaster creates the image of a facade made out of stone. *Source*: Laurence.

and end of a unit of occupation, but the architectural unity of a property – a whole city block in the case of some houses (e.g., House of the Faun in Pompeii). At Ostia, the brick-faced concrete facades of commercial buildings could achieve differentiation notably by the addition of an identifying inscription, as in the case of the Horrea Epagathiana (Stöger 2007; see Chapter 17).

However, it is the combination of the facades of individual houses that constitutes the space of the street and defines the space of the street for those passing through it. The difficulty is: how do we quantify the difference between facades in two neighboring Roman streets? My own approach to this problem has been to consider the number of doorways per meter of street as a ratio that can be employed as an indicator of demand for the usage of the facade in any one street (Laurence 2007: 102–109 provides the original formulation). I had suspected when I began this process of analysis with reference to Pompeii that the formulation would simply identify the wider through-routes of the city to coincide with MacDonald's (1986) conception of armature. Predictably, this was the case, but more emerged from the basic analysis: narrower streets that joined the through-routes or armatures at the center of the city had a similar density of doorways in their facades. This would suggest that the width of a street did not of necessity define the purpose or use of that street. Instead, the incidence of street activities expanded from the wider streets into the narrower streets to the east of Pompeii's forum – an area in which we can readily identify workshops, bars, brothels, and other features of non-elite culture (Laurence 2007: 62–101). Having conducted the analysis for Pompeii, I turned to Ostia where I found that the facades of all excavated buildings had a far greater density of doorways than in Pompeii (Laurence 2007: 107–109). Such a density would reflect a need for shops (in particular) throughout the city and point to a higher density of street usage that was fulfilled by the architectural development of facades/streets to deal with increases in population associated with the redevelopment of Ostia in the second century CE.

4. Crossroads, Street Furniture, and Signage

The crossroad, or street intersection where two streets join at more or less a right angle was recognized as a key point in the city. It was designated by the Latin word *compitum* and was associated with a *vicus* or neighborhood. In Pompeii we find evidence of this linkage in the phrase *magistri vici et compiti* (magistrates of the neighborhood and crossroad) from 47/46 BCE (*CIL* 4.60). The crossroads of Rome were associated with gods known as the *Lares*, who protected the inhabitants, and according to Pliny

(*HN* 3.66), there were 265 of these *compita Larum* (crossroad *Lares*). In Pompeii, we can locate the position of shrines at or adjacent to 38 of the 96 excavated crossroads (Van Andringa 2000; Laurence 2007: 42–45). Hence, roughly one third of the crossroads were marked out as distinctive, or simply more important than other intersections. The majority of these were located on or just off junctions along the major routes leading from the gates of Pompeii.

When aqueduct water was provided to Pompeii in the early imperial period, we find that fountains were installed at roughly one third of all crossroads (Laurence 2007: 45–49). The intersection was the preferred location for this new amenity. The placement of water fountains required consideration of the structure of traffic flow associated with a given junction as well as some ingenuity that even included alteration to the facades of some houses (Ling 2005 for a survey). The siting of this service reflects the centrality of the crossroad as an architectural space in the city, an observation that is confirmed by the fact that a bar with a counter for serving food and drink can be found at two thirds of all crossroads in Pompeii, and often these bars were designed to facilitate social interaction and positioned in places of optimum footfall past (Ellis 2004: 379). The seemingly haphazard additions to a simple street intersection of water fountains, bars, and even street shrines should be seen as single or as multiple architectural responses to the provision of services. Indeed, it can be suggested that these changes to the architecture of the crossroad were as important as the famous changes to Pompeii's forum (Dobbins 2007). Embedded within the outcomes we see today in Pompeii was the interaction among desires of the city council and its magistrates, the local inhabitants of a neighborhood, and the property owners/their tenants, whose livelihoods depended on traffic at the street intersection.

Another architectural addition to the streets of Pompeii were stone benches attached to the facades of buildings. There are about 100 that have been carefully mapped and catalogued by Jeremy Hartnett (2008b). These are additions made by property owners of houses, bars, bakeries, shops, and other private structures. The sidewalk (and perhaps also the roadway) was a section of public space that was under the control of the owner of the properties that adjoined it (Saliou 2008 for recent discussion). Unlike the distribution of water fountains, bars, or shrines, benches are not located at crossroads, nor are they predominantly found on the through-routes of the city leading from the gates. Interestingly, they are found both within the gates of the city and just outside as part of tombs within the cemeteries of Pompeii. Elsewhere in the city, benches were placed in a less consistent way reflecting the fact that these structures were set up under the direction of an individual rather than as part of a community project. However, it would appear that benches were

sited on the less busy sections of streets in the city. Yet, this is perhaps not the end of the explanation. To provide seating was to hinder, in some ways, the passage of pedestrians, and thus these points in the streets of the city became places at which movement was slowed. Thus, the placement of benches could create a public social center that was located away from a crossroad and, given the majority were placed outside houses, away from the commercial properties of the city.

There were no street signs in the modern sense, but there was signage in the streets of Pompeii. At some street corners and on the facades of some buildings are visually distinct plaques depicting phalluses, figurative imagery, and geometric patterns (Ling 1990). All are placed above head height (at about 2–3 m above the sidewalk) and tend to be set into recently built walls (of brick) of the imperial period (Ling 1990: 61). The phalluses are conventionally interpreted as apotropaic symbols of good luck. The figurative plaques include scenes of two men carrying an amphora, a donkey/mule, or tools, and thus can be related to trades – perhaps we should not rule out indications of street names derived from these activities though. The geometric patterned plaques are very difficult to explain in any functional sense (Ling 1990: 63–64). There is a possibility that builders simply liked making them and that they were a sign of their skill to be seen as a signature high up above the heads of the crowd.

5. The Monument and the Street

Those streets that formed armatures leading from gates to monuments across the Roman city need further discussion. The gate as an entry point into the city was a crossing point across the boundary of the walls (including the sacred boundary or *pomerium*) and a point at which entrance was made into the city, perhaps associated also with the payment of customs dues (Perring 1991). The gateway could be turned from a purely defensive form into a sophisticated monument adorned with sculpture, as we find at Perge in the second century CE (Boatwright 1991; 1993). The gateway announces a break from travel on a road owned and maintained by the state, such as the Via Flaminia leading to Rome, and a passage into a space controlled by a city council – as we find at Rimini, with the construction of the Arch of Augustus at the point of entry to the city and to the road. There is also a break in the nature of the adjacent monuments as a person entered a city gate, as tombs gave way to houses (see Chapter 14) and, in the case of Pompeii, became lined by houses rather than public monumental architecture.

The presence of prestige buildings along a street created, as we have discussed, an armature of movement. However, it needs to be recognized that

the monuments would have disrupted the flow of movement in the street as people reached their destination at the monument or paused in front of it. Such points of intersection between the street and a monument were clearly defined. In the Forum Romanum in Rome, the Sacra Via and other streets were laid with basalt blocks, whereas the sidewalk of what is known as the *area* or piazza in the center of the forum was paved in a white stone (Laurence 2012 for discussion). This pattern can be found elsewhere. For example, at Terracina, the Via Appia passes to the side of the paved piazza with blocks of stone to delineate the separation of the basalt paving of the road and the white stone of the forum. These paved spaces were for quite different modes of movement: a forum for lingering in space and a road for movement through space.

The street was not immune to the power of the monument. The *exedra* of the new Forum of Trajan in Rome (ded. 113 CE) created a bend in the street on the outside of the perimeter wall (Figure 4.5). This is a classic example of how the insertion of a monument, with a primacy given to its internal architecture, distorted a characteristic of a Roman street – in this case straightness. Other streets follow the curve of the structures of the adjacent Trajan's Markets. However, although these streets were paved with black basalt paving stones, it would appear that they were not designed for the use of wheeled transport, as steps made the use of carts impossible (Newsome 2010 on this point). What this indicates is an association between the use of black basalt paving to define a street or place of movement that had developed from the first use of basalt paving stones discussed earlier to become a means of identifying the type of space one was walking upon: for movement (a road/street) or for social interaction (a forum).

This distinction between space for movement and space to linger associated with monuments and power becomes more complicated when the monument intersects directly with the street. Triumphal arches do precisely this. They both interrupt the vision of a person moving along a street and draw that person through the arch to what lies beyond it. Intriguingly, some (but by no means all) triumphal arches had the short segment of the street surface they spanned paved in white stone (e.g., the Arch of Septimius Severus (203 CE) in Rome) rather than black basalt associated with movement and the street. The shade provided by these monuments could cause them to develop uses other than those associated with passage through. For example, Francesco Trifilò (2011) points to the presence of game boards in the paving around the arch of Septimius Severus. Again, this might suggest the architecture of the monument created a space of lingering and is more powerful than the street, whose purpose was to enable movement to the arch. Thus, it can be established that the triumphal arch disrupted the precise purpose of the street – an architectural outcome that was desired in the

creation of the arch as a thing to be viewed, even if gaming was not part of the intention of its creators. However, monuments shaped both streets and movement within them and as such exerted a spatial power over the street as well as providing a visual focus or backdrop to be viewed as a person moved across a Roman city.

6. Changing Streets or the Architecture of Movement in the Roman City

Streets are a particular form of architecture that is linear, and their purpose is connective. As we have seen, there are all the main features of urban living in the streets of the city: food and water provision, seating, religious worship, signage/symbols, recreation as well as that elusive quality of cities, the direction of movement. The archaeology of streets can most easily capture the nature of movement through the analysis of diachronic change. The blocking of the streets into the forum at Pompeii created not just a very different forum (Dobbins 2007), but also a very different pattern of movement within the city (Newsome 2009; 2010). This takes us back to the layout of the streets of the city, which seems at first sight to have been fixed. However, the blocking of streets through monumental development or simple actions to prevent wheeled access could change that network of streets. Indeed, David Newsome (2010) has suggested that the closure of streets to the forum of Pompeii and the imposition of the imperial *fora* onto the street network of Rome fundamentally changed the dominant modes of movement through those cities. This causes the streets of a city not simply to be part of a two-dimensional plan or a frame onto which the architecture of monuments was added, but instead to become part of the analysis of change, since the addition of any monument altered the spatial structure of the city. So, for example, the development of the Baths of Caracalla in the early third century CE reshaped the movement of people in the city of Rome to incorporate the building into their daily routines. The micro-investigation of the surfaces of streets may lead to greater information about the changes to traffic patterns in less well-preserved sites in the Roman Empire and to an increase in our understanding of the architecture of movement (see papers in Ballet, Dieudonné-Glad, and Saliou 2008). Archaeological studies that seek to relate the architecture of streets to a wider understanding of movement in the Roman city are only just beginning, but we can expect to see these develop quite rapidly over the course of the next decade as the study of the architecture of Roman streets moves forward.

GUIDE TO FURTHER READING

The study of streets is a relatively recent academic development. MacDonald (1986) is a fundamental starting point for a clear articulation of the relationship between streets and monuments in the cities of North Africa and the eastern Mediterranean. Much of what is in this chapter is based on work published in my book (2007, 2nd ed.). Following the publication of this book, there began to develop a greater interest in streets in Pompeii that is epitomized by the work of Ellis (2004), Poehler (2006), Hartnett (2008a; 2008b), and Newsome (2009; 2010). Kaiser (2000) sought to look at streets at Empúries in Spain, and Stöger (2007) has investigated the streets of Ostia. Underpinning the work of these authors is an implicit or explicit reference to Hillier and Hanson (1986), which sets out the methodologies and principles of space syntax analysis. In fact, it could be claimed that it is in the study of the Roman city and its streets that this methodology has had its highest impact in the discipline of archaeology as a whole. Ploughing a different furrow, Wallace-Hadrill (2003) has pointed out that in Rome, at least, the emperor was concerned with the monumentalization of the streets of the city, which can be seen also in papers edited by Ballet, Dieudonné-Glad, and Saliou (2008). It has to be said that this is a developing field, and most material is published as journal articles. Laurence and Newsome's edited volume (2011) presents the results of a series of conferences focused on the movement of people in Roman streets.

CHAPTER TWENTY-TWO

Vitruvius and his Influence

Ingrid D. Rowland

Not far from the forum of Ostia Antica, the port city of ancient Rome, two colonnades flank the city's main thoroughfare, the *decumanus maximus*. On one side, more than a meter below street level, we see a portico of tawny volcanic tuff, its rough, unfluted columns erected as stacks of drums, each one bearing a rudimentary travertine capital. A few traces of marble stucco survive on the columns' surface; once they were white, sparkling with the gleam of powdered marble when the sun struck them. This was the face of republican Ostia, an expanding seaport whose modest architecture was rooted in Etruscan precedents and carefully watched budgets; we are probably looking at a work from the second century BCE. On the opposite side of the street, and on the level with it, another colonnade displays all the wealth and cosmopolitan glory of the Roman Empire at its peak (as well as showing how quickly the annual floods of the river Tiber piled up silt here at its outlet to the sea). This portico is also from the second century, but now we are in the second century of the Common Era, and the arcade is made entirely of marble. Its columns are monoliths imported from Egypt, Asia Minor, and North Africa, and its capitals, with their elaborate drill work, boast the stylized acanthus plants that identify them as Corinthian. Both the street surface, with its paving stones of volcanic basalt, and this lavish marble portico reflect the Roman port's refurbishment under the Emperor Hadrian, who ruled the Empire at the moment of its greatest geographical extension. Rather than one of many Mediterranean ports, Ostia had now become the seaward entry to Rome, the *caput mundi*, and its buildings shone with marble gathered from every corner of that seemingly boundless Roman world.

A Companion to Roman Architecture, First Edition. Edited by Roger B. Ulrich and Caroline K. Quenemoen.

Some 150 years before Hadrian, at the precise moment of transition between the frugal, robust architecture of the Roman Republic and its refined imperial successor (and at just about the midpoint between the construction dates of the two porticoes at Ostia), a retired architect named Vitruvius Pollio wrote a treatise about his profession for the man who had more power than any other to effect the future development of architecture in the last decades of the first century BCE: the man he calls Imperator Caesar, "Commander Caesar," and whom we call Augustus. Vitruvius is quite clear in stating his motives for composing such an ambitious work; he wants Augustus to make good architectural choices for the Empire and to base those choices on concrete knowledge:

> When … I perceived that you concerned yourself not only with the establishment of community life and of the body politic, but also with the construction of suitable public buildings, so that by your agency … the majesty of the Empire had found conspicuous proof in its public buildings, then I thought that I should not miss the opportunity to publish on these matters for you … I have set down instructions, complete with technical terms, so that by observing them you could teach yourself how to evaluate the works already brought into being and those yet to be. For [here] I have laid out every set of principles for the discipline. (*De Arch.* 1.praef.2–3)

"The discipline" as Vitruvius knew it differs, needless to say, from the range of subjects taught in contemporary schools of architecture, and the profession itself was changing when Vitruvius wrote (see Chapter 7). The original Greek term that gives us our word "architect," *architektôn*, means "chief builder," and in the Greek world it applied to the figure we would call the contractor; he – *architektones* were always men – bore the responsibility for executing projects, but not necessarily for their design. Plutarch's *Life of Pericles* makes this distinction of duties particularly clear: he specifies that the designer of the Parthenon and the other new buildings on the fifth-century Athenian Acropolis was the sculptor Pheidias, Pericles's close friend, whereas the architects assigned to the various buildings, Ictinus, Mnesicles, and Callicrates, must have been hired to supervise construction (Plut. *Per.* 13.4). This they seem to have done with a great deal of autonomy to judge from the very different ways in which the buildings of the Acropolis were eventually put together, but a variety of techniques, even on the same building, is not uncommon in the ancient world; the Colosseum in Rome, for example, was clearly entrusted to four separate construction teams, all working simultaneously, with different techniques and – as we can see now that the building is stripped of its various layers of stucco and cladding – different standards of quality (Lancaster 2002; 2005b).

Similarly, the range of an architect's competence in the time of Vitruvius differed from that of his modern equivalent. An ancient Roman *architectus*

could, apparently, bear responsibility for the design of the buildings commissioned of him, but he could also be put to work on city planning, laying out fortifications and waterworks, or the design of smaller objects, including clocks, sundials, machines, and artillery (Rowland and Howe 1999: 5–7). Vitruvius himself reminisces about making catapults for Julius Caesar during the Gallic Wars (*De Arch.* 1.praef.2) and designing a basilica (*De Arch.* 5.1.6–10) for the Roman colony of Fano (the city's modern name; its ancient name was Colonia Julia Fanestris). And he cannot resist indulging in a bit of professional boasting about this latter project: the basilica at Fano, he crows, "attain[ed] the highest degree of dignified elegance" (*De Arch.* 5.1.6), and yet it cost very little to build. He does not tell his readers that his design also marked a radical departure from previous structures, with its giant order of interior columns; the reassuring sound of "dignified elegance" is more in keeping with the safe, traditional criteria that Augustus sought to impress on his newborn Empire (Rowland and Howe 1999: 11–18). Not until Michelangelo in the mid-sixteenth century would an architect use giant orders as creatively as Vitruvius.

Otherwise, we know almost nothing about the life of Vitruvius Pollio. We are not even sure about his first name, or *praenomen*; it appears in most manuscripts as Marcus, but also as Aulus or Lucius. His familiarity with the landscape and monuments of Campania would suggest that he might have come from this region, and archaeological evidence also confirms this; the gentilic *nomen* Vitruvius occurs with some frequency on grave inscriptions from the region around Formia, exactly halfway between Naples and Rome (Baldwin 1990).

Vitruvius also seems to know a good deal about Asia Minor; like many well-off young Romans, he may have gone east to perfect his Greek. On occasion he remembers his travels with Caesar to Gaul (*De Arch.* 2.1.4, 2.9.15, 7.13.1, 8.2.6). But his real focus centers on the Bay of Naples and above all on Rome, the place he always calls simply *urbs*, "The City" (just like modern Romans). Most prosperous Romans in the Augustan period knew Campania well; they flocked to Baiae on the Bay of Naples for the thermal baths and the beautiful landscape, at least until 79 CE, when the eruption of Vesuvius cooled their enthusiasm. Augustus himself died in Nola, on the road in Campania between Naples and Rome (Suet. *Aug.* 98–100).

Another biographical hint may come from the writer Julius Sextus Frontinus, whose treatise on aqueducts of 97 CE notes that a certain Vitruvius imposed standard diameters on lead water pipes when he served as *curator aquarum*, chief hydraulic engineer, to the city of Rome (Front. *Aq.* 1.25, a discussion we shall take up again below). Otherwise, we know that Vitruvius had been awarded a pension, *commoda*, on the recommendation of Augustus's sister Octavia (Vitr. *De Arch.* 1.praef.2), presumably for his services to Caesar, that

his parents had ensured him a good education (Vitr. *De Arch.* 6.praef.4), and that he was neither young nor handsome by the time he published his *Ten Books*, for he writes:

> To me, Imperator [he writes to Augustus], Nature did not grant imposing stature, age has ruined my face, and bad health has carried off my strength. (*De Arch.* 2.praef.4)

It might be wise, however, to take this unassuming self-description with a grain of salt; Vitruvius, no fool, is adding as much poignancy as he can to the plea, "Read me!"

From his own comments, we gather that Vitruvius wrote his treatise at a time when the conditions of his profession were changing rapidly. Rome's military and commercial expansion had turned it from one of many city-states on the Italian peninsula into an increasingly populous, far-flung, and cosmopolitan Empire. In this new global economy, extending into three continents, architectural commissions were no longer a matter of private arrangements among acquaintances; they were also sought after aggressively by brash young men with no sense of (or reason to benefit from) tradition, not to mention Greek slaves and ambitious contractors (*De Arch.* 3.praef.3). Augustus himself made a point of invoking traditional values as he transformed Rome from a badly functioning republic into an efficiently functioning, imperial monarchy, and Vitruvius, in many ways, is up to a remarkably similar trick (Zanker 1988; Favro 1996; see Chapter 3). He, too, invokes traditional aesthetic and social values, but in fact his book is anything but traditional. Not only does he want Augustus to make economically sound, aesthetically pleasing, and philosophically consistent judgments as a patron of architecture, he also wants to propose that the status of architecture itself be raised from the realm of the crafts and professions to reign among the liberal arts at the top of the Roman intellectual hierarchy (Rowland and Howe 1999: 7–8; Masterson 2004).

The campaign to elevate his profession's standing may have succeeded, considering the rarefied status of some of the architects who worked in Rome in subsequent decades: figures like Rabirius, who designed the lavish house of the Emperor Domitian on the Palatine Hill (82–96 CE; Mart. 7.56), and Apollodorus of Damascus, who designed the Forum and Markets of Trajan (107–113 CE; Al Bounni 2001; Abdulkarim *et al.* 2003). Like the gentleman painter Fabullus (or Famulus, or Amulius; the manuscripts disagree), who decorated Nero's Golden House in 64 CE (Pliny *HN* 35.120), these men moved at the top of imperial society. We also know that two Roman emperors designed their own architectural projects: Nero and Hadrian, both with spectacular success. The fact that architecture had become a pursuit worthy of

emperors again suggests that Vitruvius did indeed manage to raise the profile of the field in his own day.

In order to make his case for his profession's rightful place among the liberal arts, Vitruvius devotes one of his earliest discussions to the broad education an architect must receive in order to function effectively: he must know law, music, mathematics, astronomy, and history as well as the laws of physics and decorum, by which he means both appropriate design and appropriate social behavior (*De Arch.* 1.1.1–18). It goes without saying that an educated citizen of Rome is competent in both Latin and Greek, and therefore Vitruvius has no need to mention the fact; his treatise shows that he read both languages, and he used them both in drafting his own text (Masterson 2004).

And although he addresses his work explicitly to Augustus and to busy, well-to-do *patres familiarum*, he understands that his customers will be both male and female. Legally, Roman males may have held supreme power within the family, the *patria potestas*, but our surviving literary and epigraphical sources reveal how consistently, and how cleverly, Roman women ruled the roost. Hence Vitruvius declares that a temple's columns should be spaced widely enough for two matrons to pass through them arm in arm (*De Arch.* 3.3.3), and his most basic image for the process of design, "ordering," *ordinatio*, is drawn from the upright loom on which the matrons of early Rome wove their family's garments, the literal originators of the social fabric (Rowland 2005).

Physically, Vitruvius wrote his *Ten Books on Architecture* on 10 separate scrolls of Egyptian papyrus (or possibly parchment), in capital letters with no spaces between the words. To his text, he added 11 illustrations, which provided diagrams of ideas he found difficult to describe in words alone (unfortunately, they did not survive in the manuscript tradition). In the preface to his fifth book (*De Arch.* 5.praef.3–5), Vitruvius notes that the human attention span is limited, especially when it is the attention span of a busy Roman patrician, and he therefore keeps his books relatively short; interestingly, the ideal length he postulates for an essay, using Pythagoras as his example, is strikingly close to the target length (3,600 words) for a longer article in a contemporary magazine like the *New York Review of Books*; each of the chapters in this book is roughly equivalent in length to Vitruvius Book 10.

In the age before movable type, publication meant circulating manuscript copies of a work for a public readership; Rome itself was filled with scriptoria in which professional copyists could create multiple copies of a work and supply them to the booksellers (that is, the scroll-sellers) in the Vicus Tuscus, and this must have been where the *Ten Books* first appeared for public consumption (Ogilvie 1980; Blanck 1992). A copy of Vitruvius might even have come with its own basket to keep the 10 scrolls together.

In antiquity, books did not really have titles; *De Architectura Libri Decem* simply describes the commodity Vitruvius offered: "Ten Scrolls about Architecture."

The most likely publication date for the *Ten Books* is in the 20s BCE, when Augustus was busily laying the cultural and political foundations for his imperial state. Specific references within the text suggest a still more restricted range of dates: he calls the Temple of Augustus at Fano the *aedis Augusti*, meaning that he must be writing after 27 BCE, when the Senate awarded the Imperator that title, and he speaks of Aquitania as a separate province, a designation only formalized between 27 and 22 BCE (Rowland and Howe 1999: 2–7). Construction has not yet begun on the Theater of Marcellus, initiated in 19 BCE; the Rome of Vitruvius has only one stone theater, the Theater of Pompey.

We can probably assume that the balance of the *Ten Books* provides a reasonably accurate reflection of the balance among the various skills that might be required of a first-century Roman architect in the erudite mold that the author himself represents. The treatise begins with big ideas: the architect's education, city planning (Book 1), building materials (Book 2), large-scale public works, with temples (Books 3 and 4) given precedence over other public buildings (Book 5). He then turns to private building: houses, beginning with their construction (Book 6) and moving indoors to treat the decoration of individual suites and rooms (Book 7). The final three books follow a different plan that moves toward increasing levels of technological sophistication: Book 8 deals with hydraulics, Book 9 with astronomy and the creation of sundials, and Book 10, the longest by far, with machines, a beguiling variety of them, from the peacefully practical and amusing to the instruments of war. Vitruvius ends his *magnum opus* on a triumphant note with a series of tales about architects who used their sharp wits and rudimentary materials to defend their cities successfully against the latest in siege engines: "[these cities] were liberated by the cleverness of architects pitted against machines" (*De Arch.* 10.16.1–12). From first to last, he portrays architecture to the civic-minded Augustus as the ultimate civic-minded profession.

In proper Roman style, each of the *Ten Books* begins with a formal preface that displays the most elaborate rhetoric Vitruvius can muster (Nylander 1992). Here he recounts instructive anecdotes, states his basic philosophical principles, and carefully reminds his readers exactly where they stand in the grand, lucid plan that governs his composition. If Vergil identified the Romans' chief virtue as their ability at management, Vitruvius is a sterling example of Roman organization. Every section of his work has been set out, in his words, *uti ordo postulat*, "as order demands it," and although he is modest about his literary attainments, he is serenely confident of his professional *gravitas*:

> But on the power of my own art and the systems of reasoning included in it, I promise that, as I expect, in these pages I will without a doubt prove myself possessed of the greatest authority – not only for those who intend to build, but indeed for all learned men. (*De Arch.* 1.1.18)

Authority, *auctoritas*, is a word to reckon with: the name "Augustus" derives from the same root, and Vitruvius would not claim an analogous power lightly in the presence of the Empire's supreme wielder of *auctoritas*. He must have been a person of some consequence.

Scholars have debated for centuries about the quality of his writing, often revealing as much about their own social preoccupations as about his. Earlier readers have been more generous on the whole than modern classicists: in the fourteenth century, for example, Francesco Petrarca, as good a writer as any in Latin and Italian, prose and poetry, put this note in the margins of his own manuscript of Vitruvius: "He apologizes for his style, to my mind without reason" (Ciapponi 1960). To be sure, the prose of the *Ten Books* is not in a class with Cicero's (even Cicero's falls short of that ideal on occasion), though it certainly shows the influence of Cicero's cadences and Cicero's vocabulary; the great orator, a generation older than Vitruvius, made a pioneering effort to put the Greek philosophical lexicon into Latin (Rawson 1972; 1985). On the other hand, as most of his surviving manuscripts attest, Vitruvius calls a cart by its countrified, plebeian name, *plostrum*, rather than the more elegant *plaustrum* (Lindsay 1894: 40–41; Baldi 1999: 182, 251). His subject matter takes him from the formal oratory of his prefaces to basic instructions for mixing concrete, tuning catapults, and designing doors, and hence runs the full range of Latin stylistic registers: the "high" rhetorical style for his prefaces and concluding paragraphs, the "middle" narrative style for the anecdotes that pepper his discussions, and the plain "low" style for giving instructions (Callebat 1994). On the whole, he writes clearly, though there are some passages in his text, like the design of the basilica at Fano, the creation of an Ionic capital, or his discussion of the *scamilli impares* that help architects create curves, that have been debated, creatively but inconclusively, for centuries (Clini 2003; Pizzigoni 2010).

For many of his discussions, Vitruvius makes use of earlier writers, including a large number of Greeks. Sometimes we can almost see him at work, a scatter of Greek and Latin papyri unrolled across his desk – it would have to be a very large desk – excerpting technical terms, instructions, poetry, and a bountiful harvest of anecdotes. With equal frequency, we find him struggling on his own to find Latin words for ideas that have never been expressed in Latin before: philosophical terms, the design of Etruscan temples, the giant order in his basilica at Fano.

For a number of reasons, Vitruvius has the reputation of being a conservative architect (e.g., Boëthius 1939: 114–143; Knell 1991: 59). He spends the greater part of two books outlining the basics of Greek post-and-lintel architecture, with special regard for the Hellenistic architect Hermogenes, even though the predominant medium for construction in his own milieu is concrete. He does not foreshadow the future achievements of imperial Roman architecture, most of which were built long after his death. He lets fly a tirade against modern painting in Book 7. He invokes the good old days when potential patrons inquired first about an architect's family and upbringing and only then about his professional skill (*De Arch.* 6.praef.4–7).

On the other hand, Augustan Rome was built on a show of conservatism that soothed people as they experienced the rapid transformation of their society on almost every level (see Chapter 3). If Vitruvius invokes tradition and the old days, we should bear in mind that he is doing so as he writes a groundbreaking new treatise for the new age. Most of his apparently conservative stances are cleverly aimed at bringing Roman architecture through the passage from past to future both boldly and securely. We should look at what he built – the basilica at Fano – and on that basis put his philosophical statements in context.

As it happens, the rules of proportion governing post-and-lintel construction work identically for the engaged columns that articulate Roman concrete arcades as they do for the free-standing columns of Greek temples. By tracing his discussion of columns and their proportions back to the Greeks, Vitruvius is probably reproducing the system by which he himself had been taught the essential principles of good design, the subject he calls "proportions and symmetries." By harking back to Hermogenes and Pytheos, he roots contemporary construction in a tradition of building that is carefully cued to a human scale; this is not so much "conservative" as it is sensible. Concrete is a formless medium; Vitruvius explains how to mix it in his second book, but the material, once mixed, can take virtually any shape. It has no inherent scale or notable limitations. The Greek proportional systems, on the other hand, were designed to address the strengths, weights, and limitations imposed by stone architecture. Hence the Greek symmetries provided Roman architects with systematic guidelines for building both in the older materials of stone and wood and in concrete, a medium that otherwise imposed few limits on its own.

Furthermore, the present-day view of Vitruvius, especially of his chapters on architectural proportion, is profoundly conditioned by the way he was reinterpreted in the Italian Renaissance (as we shall see below). That reinterpretation was, at the outset, closely allied with a single time, the Italian Renaissance; a specific place, Rome; and a specific religious environment, Roman Catholicism on the eve of the Protestant Reformation. The term

"orders," which has become the standard term referring to Doric, Ionic, and Corinthian columnar systems, was never applied in this sense until Raphael, and his circle so used it in Rome in the second decade of the sixteenth century, when "order" carried definite religious implications (Rowland 1994). Vitruvius himself never used the word *ordo* in connection with columns except to mean a row of them; the Latin term derives from the row of threads set out along the crosspiece of an upright loom.

The "Five Orders" of classical architecture built upon, and slightly adapted, Raphael's discussion of columnar orders; the "Five Orders" first appeared in Jacopo Barozzi da Vignola's treatise *Le Cinque Ordini dell'Architettura* of 1562. As Vitruvius states clearly (*De Arch.* 3.1.12, 3.8.4–7), he has detailed the Ionic, Doric, and Corinthian proportional systems because he knows their names; in the meantime, however, he actively encourages architects to design new systems, what he calls *genera*, of their own. This is the way he was read in the fifteenth century, where the varieties of column capitals are as infinite as they were in the Campania of the first century BCE where Vitruvius may first have trained his eye on architectural detailing (Boëthius 1939).

The long discussion of proportion in Vitruvius Books 3 and 4 is not so much conservative as it is explicitly philosophical, enabling Vitruvius to claim that architecture is a liberal art. He begins from Aristotle's premise that art imitates nature; hence all good art must be drawn from and resemble the natural world. This is why the proportions of temples derive from the dimensions of the human body, and why Doric triglyphs and Ionic dentils reproduce the appearance of wooden architecture, of major rafters and common rafters:

> And therefore [the Greeks] felt that there was no rationale for making an image of what would never obtain in fact. For in the proper completion of their works, they expressed everything as it certainly was, drawn from the true customs of Nature, and they approved those things of which the explanations, when examined, can be shown to possess the ground of truth. (*De Arch.* 4.2.5–6)

This insistence on truth to nature is what inspires his remarkable screed against modern painting:

> For monsters are now painted in frescoes rather than reliable images of definite things. Reeds are set up in place of columns, as pediments, little scrolls, striped with curly leaves and volutes; candelabra hold up the figures of aediculae, and above the pediments of these, several tender shoots, sprouting in coils from roots, have little statues nestled in them for no reason, or shoots split in half, some holding little statues with human heads, some with the heads of beasts. (*De Arch.* 7.5.3)

> Now these things do not exist nor can they exist nor have they ever existed, and thus this new fashion has brought things to such a pass that bad judges have condemned the right practice of the arts as lack of skill. (*De Arch.* 7.5.4)

His stand is entirely rooted in philosophical principle:

> Minds beclouded by feeble standards of judgment are unable to recognize what exists in accordance with authority and the principles of correctness. Neither should pictures be approved that are not likenesses of the truth, nor, if they are made elegant through art, is that any reason why favorable judgment should immediately be passed on them, not unless their subjects follow sound principles without interference. (*De Arch.* 7.5.4)

Nothing if not consistent, Vitruvius subjects Nature herself to the same "authority and principles of correctness" when he describes her guidelines for creating the Zodiac in Book 9, an activity she has undertaken, significantly, as an architect:

> The power of nature has acted as architect … [so that] in the middle between [the poles] there is a broad circular belt fashioned with twelve signs … The design of each sign shows an image taken from nature, outlined in a pattern of stars among the twelve matched divisions of the belt. (*De Arch.* 9.1.3)

From designing the cosmos in Book 9, Vitruvius moves on to discuss designing machines in Book 10, and then, at last, to designing stratagems. His aesthetic opinions may follow a rigorous philosophical regimen, but his broad definition of architecture itself, like his expansive view of the architect's potential place in society, suggest a writer exploring entirely new terrain.

It is hard to gauge how much influence Vitruvius wielded in ancient Rome. Not one of his exact contemporaries mentions him, but this may not be surprising, as most of our surviving Augustan authors are poets. If he is the same Vitruvius who became *curator aquarum* in Rome, superintendent of the city's water supply, then his practical influence, in at least one area, was profound indeed. The writer Julius Sextus Frontinus, in his treatise on Roman aqueducts, *De Aquis Urbis Romae*, written in 97 CE, recalls that Vitruvius the *curator aquarum* was the first person to impose standard sizes on the lead pipes that formed the mainstay of Roman plumbing – despite the fact that Vitruvius the author is the first known writer to call attention to the dangers lead posed to human health (*De Arch.* 8.6.10–11), and how metal in general affects the taste of liquids (*De Arch.* 8.6.11).

In the realm of painting, Vitruvius's outcries against modern style seem to have had no effect whatsoever, either in ancient times or in the Renaissance; the exuberant fantasy of what he calls "monsters … rather than reliable images of definite things" (*De Arch.* 7.5.3) has always captivated more viewers than it has repelled.

His effect on the progress of ancient Roman architecture and on ancient Roman patronage of architecture is virtually impossible to measure except by extremely indirect means. Presumably Vitruvius was widely read; Roman patricians seem to have enjoyed pointedly instructive literature as much as early modern Puritans, and there is no reason to believe that the people who read and preserved works like the surveying treatises of the *Corpus Agrimensorum* or poetic non-fiction works like the *Astronomica* of Manilius did not also devote close attention to the *Ten Books on Architecture*. The fact that no other writer, to our knowledge, ever addressed the same subject again in antiquity proves either that Vitruvius's experiment was a failure, or that it was a triumphant success. Certainly no ancient writer (at least to our knowledge) aspired to improve on his work. When we consider that the modern connection to an author as captivating as Catullus hangs on a single manuscript, and apparently popular ancient writers like Cornelius Gallus do not survive at all, the position of Vitruvius in ancient Roman libraries looks relatively secure.

Perhaps Vitruvius also had a real influence on his readers' architectural choices. He certainly supplied architecture with a systematic aesthetic framework, and that systematic thinking extended to the actual process of construction as well. We might see parallels between his own efforts to standardize the dimensions of lead pipes with an increasing standardization of other elements in Roman building: column heights ultimately tended toward units of 10 Roman feet, and the design of their capitals tended to hew to the Doric, Ionic, and Corinthian models set out in the *Ten Books* (with the additional Composite variation of Corinthian introduced by the Flavian emperors in the later first century CE) (Wilson Jones 2000b). Standard dimensions greatly facilitated what had become an international commerce in building materials; the same internationalization may have favored an increasing standardization of form as well: the thickness as well as the height of columns, the basic dimensions of capitals (the ratio of width to height for Corinthian and Composite is roughly 1:1) and bases. Vitruvian restraint may have had an aesthetic basis (at least as he presents it to his readers), but that restraint also harmonized well with the production of individual architectural elements on an industrial scale – as Vitruvius must have known perfectly well himself.

Furthermore, the advice he imparts in the *Ten Books* is often eminently practical; it is hard to tell, then, whether people adopted his solutions specifically because Vitruvius recommended them or because they were simply the best

solutions available. It did not take a treatise to tell an ancient patron or his contractor that masonry survives better than wattle and daub. Surviving Roman floors and hypocaust systems look like the floors and hypocaust systems that he describes. Painted walls that follow the Vitruvian precepts about plastering and finishing have lasted longer and better than walls constructed more cheaply by more slapdash methods, but when Vitruvius discusses plastering, or flooring, or hypocausts, he is handing on his own tradition of practice, not making up an inventive new way to build. After two millennia, patrons who invested in pigments made of cinnabar and lapis lazuli can be easily distinguished from those who ordered the cheaper equivalents of ochre and copper sulfate, but their choices must have been dictated primarily by the amount they had to spend and the impression they wanted to make, not by the sharp comments Vitruvius reserves for second-rate workmanship – their neighbors could supply that in equal measure. One key to the survival of Vitruvius among so many lost ancient authors may have resided in the fact that his Roman readers could recognize themselves and their world in his precepts – indeed, we ourselves study him in part because we assume that he passes on information that every sober, established Roman family accepted as self-evident.

What makes Vitruvius remarkable among architectural writers in any era, and unique in antiquity, is the way he inserts architecture, a very broadly defined idea of architecture, into an equally broadly defined philosophical framework. In his scheme, architectural practice originates with the structure of the cosmos, and Nature herself ranks as the greatest of practicing architects, in an intricate system that moves harmoniously from the grand cycles of the heavens to the structure and rhythms of the human body (see Chapter 8). As it turned out, Vitruvius would leave another lasting legacy by presenting himself as an advisor to Augustus; his repeated emphasis on authority convinced later readers of the close connection between architectural *auctoritas* and political authority.

The earliest preserved surviving text of Vitruvius is a parchment codex written at the time of Charlemagne (ninth century) and now preserved in the British Library (MS Harleianus 2767). The next oldest manuscript may have been copied a century or so later, and belongs to the Herzog-August Bibliothek in Wolfenbüttel, near Hannover in northern Germany (MS Gudianus 69). All the other surviving manuscripts of Vitruvius, more than 130 of them, seem to descend from one of these two versions of the text, which differ slightly from one another and must therefore reflect discrepancies that cropped up during Late Antiquity or the very early Middle Ages (Krinsky 1967; Weiskittel and Reynolds 1983; Schuler 1999). Some of these 132 manuscripts are incomplete, and several were copied long after the invention of movable type in the mid-fifteenth century. Many bear the notes of readers in their margins; sometimes these readers' notes, or scholia, have been recopied by scribes along with the original text of the *Ten Books.* By examining the handwriting and language of these marginalia,

which give clues to their date, we can see that Vitruvius meant different things to different readers over the centuries. Medieval readers were interested in the first book, with its outline of a liberal education – this was the age that invented universities, after all – and in the last three books, with their discussions about water, astronomy, and machines. As good Christians (and occasionally Jews and Muslims), they did not care about the proportions of pagan temples, *fora*, or Roman houses, although the design of Byzantine and Romanesque churches, like that of Islamic mosques, continued to preserve many elements of classical architecture, and hence of the Vitruvian tradition (Schuler 1999). Charlemagne may have commissioned the first surviving manuscript of Vitruvius as a way of modeling his kingship on the example of Augustus, just as he modeled the architecture of his chapel at Aachen on classical forms (Weiskittel and Reynolds 1983).

With the rise of the humanist movement in fifteenth-century Italy, readers turned their attention once again to the books on proportion. The book collector Poggio Bracciolini bragged of having rescued Vitruvius from oblivion by discovering a manuscript at the monastery of Bobbio in 1419, but in fact the *Ten Books* had never disappeared from view (Weiskittel and Reynolds 1983). In 1450, while working at the Vatican, Leone Battista Alberti wrote a 10-book architectural treatise for his own era, *De Re Aedificatoria*, lamenting that Vitruvius was so hard to understand that he may as well never have written at all (Alberti 1966: 443). And in fact Alberti had a point: the text had become so garbled over the centuries that some sections were nearly incomprehensible. Furthermore, the surviving ruins of ancient Rome belonged for the most part to buildings erected centuries after Vitruvius and Augustus. But Alberti not only pinpointed the problems with Vitruvius; as a supremely talented scholar and architect, he also showed the way to their solution: a combination of textual criticism, archaeological investigation, and actual architectural practice. Through his efforts and those of his contemporaries, the *Ten Books* became one of the guiding lights for the art and architecture of the Italian Renaissance (Pagliara 1986; Clarke 2002; Rowland 2005).

The first printed edition of Vitruvius was published in Rome in 1486, edited by the Latin scholar Giovanni Sulpizio da Veroli under the auspices of the powerful Cardinal Raffaele Riario, who was also an important patron of modern architecture (Sulpizio 1486). Riario's cousin, Pope Julius II, sponsored the first illustrated edition of Vitruvius, published in Venice by Fra Giovanni Giocondo in 1511, with an extensively corrected Latin text (Giocondo 1511; Ciapponi 1984). Not surprisingly, Italy, and especially Rome, had become the center of Vitruvian studies, but this study was more than a scholarly exercise; the real quest was to find a new architectural style that would combine classical beauty with Christian faith. The remodeling of St. Peter's Basilica, begun in 1506, provided the ideal venue for this new style of architecture, under the guidance of the architect Donato Bramante, and then of Raphael. As architect of St. Peter's, Raphael

undertook intensive study of Vitruvius, commissioning a vernacular translation and embarking on an ambitious project to measure and reconstruct, at least on paper, the surviving ruins of ancient Rome (Di Teodoro 2003). This was the context in which he wrote about the classical "orders" of architecture, a term, and an idea, that gained almost immediate currency, confirmed definitively in Jacopo Barozzi da Vignola's *On the Five Orders of Architecture* (*Delli Cinque Ordini dell'Architettura*) of 1557 (Rowland 1994). Architectural treatises proliferated with the printing press, especially in Italy, such as Sebastiano Serlio's *Four Books* and Andrea Palladio's *Four Books*, as well as scholarly editions of Vitruvius. Andrea Palladio collaborated with his friend and patron Daniele Barbaro to produce a lavish, illustrated edition in 1565. The Italian passion spread to France; Louis XIV confirmed his stature as the Sun King by following Augustus, Charlemagne, and Julius II in sponsoring a Vitruvius for his own time: Claude Perrault's lavishly illustrated French translation in 1673.

Thanks to the establishment of the classical orders at the center of western architectural practice, Vitruvius continued to hold a dominant position in every western architectural curriculum (and many non-western ones) until the advent of the Modern movement in the twentieth century (Pagliara 1986). At the same time, Latin scholars, Germans especially, had continued to emend the text, just as the development of increasingly scientific, systematic archaeology clarified many of the confusing passages in the *Ten Books*. The reputation of Vitruvius himself has shifted with the times: early twentieth-century scholars regarded him as stolidly unoriginal and a poor Latin stylist, but his reputation for original thinking and acceptable Latin style has gained momentum since the 1980s.

The spread of Modernism marked a definite break between Vitruvian scholarship and contemporary architectural practice for the first time since the Renaissance (though all the pioneering Modernists certainly read the *Ten Books*). In the late 1970s, however, a new classical movement emerged on an international scale, most flamboyantly in the late twentieth-century style known as Postmodernism, but also in the recent work of more rigorously classical contemporary architects, including young practitioners (Jencks 1987; Klotz 1994; Mayernik 2003). There is life in Vitruvius yet.

GUIDE TO FURTHER READING

For more about Vitruvius and his treatise, see McEwen (2003). Lester (2012) tells the story of Leonardo's "Vitruvian Man." Interpretation of Vitruvian terms takes an unexpected turn when the great Gian Lorenzo Bernini is asked to "improve" the Pantheon for the Pope in Marder (1989). For Vitruvius in his cultural milieu, see Wallace-Hadrill (2008b). For Roman architecture in general, see MacDonald (1982a; 1986) and Wilson Jones (2000b).

CHAPTER TWENTY-THREE

Ideological Applications: Roman Architecture and Fascist Romanità

Genevieve S. Gessert

Introduction

On May 26, 1934, a fierce debate erupted on the floor of the Italian Chamber of Deputies. The official body had gathered to give its rubber stamp of approval to an architectural competition to create a new Palazzo del Littorio on the recently completed Via dell'Impero (today the Via dei Fori Imperiali), and the motion was expected to be simple and unobstructed. Yet when the Secretary of the Fascist Syndicate of Architects, Alberto Calza-Bini, opened the session with a speech in praise of the Gruppo Toscano's Rationalist Santa Maria train station in Florence, the reaction was far from conciliatory. Several members, led by traditionalists Roberto Farinacci and Francesco Giunta, saw the Florence station as evidence of a foreign taint in Italian visual arts and described the structure as Teutonic and Bolshevik, while others rejected it simply on aesthetic grounds as contrasting too sharply with the surrounding Renaissance structures (Doordan 1988: 109). Calza-Bini attempted to defend the Italian qualities of the Florence project, but Giunta retorted, "We don't want the train station of Florence on the Via dell'Impero!", and the discussion devolved into mayhem (Etlin 1991: 429). Il Duce Mussolini was finally forced to intervene and received the Gruppo Toscano at the Palazzo Venezia on June 10 for a private audience, the substance of which was made public in a press release:

A Companion to Roman Architecture, First Edition. Edited by Roger B. Ulrich and Caroline K. Quenemoen.

> I want to make it unequivocally clear that I am for modern architecture, an architecture for our times … It would be absurd to think that today we cannot have our own architectural expression. It would be absurd not to want a rational and functional architecture. Every epoch has produced its own functional architecture. Even the [ancient] Roman monuments we are currently excavating responded to their functions … I have called you specifically because you are the architects of the Florence Station … You tell the young architects graduating from the schools of architecture to follow my instructions: not to be afraid to be brave. … The Station of Florence is beautiful, and the Italian people *will* like the station of Florence. (Doordan 1988: 109; emphasis Kirk 2005: 104)

This was the only time Mussolini saw fit to involve himself directly in the aesthetic politics of his regime, yet his intervention was more about restoring his own political stature than establishing a clearly delineated role for Fascist architecture within Italy's historical tradition. Mussolini spoke often of the need for a Fascist style, one that responded to, resonated with, or even improved upon the examples of the past, particularly those of ancient Rome. But Il Duce's statements on the nature and appearance of this new *stile Littorio* were typically vague, with momentous yet often contradictory references to ancient Rome, the Roman Empire (both new and old), and modernity. Mussolini wanted a style that was modern, breaking with the infertility and anachronism of the recent past, yet grounded somehow in "good" Italian tradition and history. The episode of the Florence train station, while not dealing directly with the issue of Fascist-era architecture and its relationship with ancient Rome, is particularly revealing of the contemporary dialectic surrounding all major architectural projects during this period, the uncertainty in creating an architectural expression of a concept that was itself undefined, and the role that architecture could play in an environment of closed political discourse.

This chapter will explore the two contexts in which this relationship between the Fascist present/future and the Roman past played itself out. Following Mussolini's vague pronouncements in the early years of his regime on the need for an aesthetic to express Fascist ideology, the nature of this new style in architecture was vociferously debated by Italy's foremost architects and visual critics via the popular press, professional journals, and temporary exhibitions. The first part of the chapter will provide a basic overview of this complex and at times nasty discourse, focusing particularly on the ways in which the dominant architects and movements sought to define their style in reference to perceived notions of modernity and *romanità* ("Roman-ness"). The definition of classicism during this period was not based on formal terms but on theoretical or even moral concepts, resulting in a variety of building styles and typologies that claimed to evoke the classical and the modern simultaneously (Ciucci 1987: 77). The second section will explore how this theoretical debate played out in actual practice, with an analysis of the events

surrounding the development of the southern end of the Via dell'Impero. Framed by the Colosseum and the Basilica of Maxentius, and created through massive interventions of archaeology and engineering, this plot was perhaps the most politically and historically charged location in all of Rome, and provided the catalyst for the Chamber of Deputies' debate described above.

1. Forging a Fascist Style: The Theoretical Debate

> It is necessary to free ourselves from the mediocre disfigurements of the old Rome, and at the same time alongside the ancient and medieval we must create the monumental Rome of the 20th century. Rome cannot, must not be only a modern city, in the by now banal sense of the word, it must be a city worthy of its renown and this renown must constantly renew itself to provide a heritage to hand down to future generations. (Mussolini at his citizenship ceremony, April 21, 1924 on the Capitoline in Rome; Painter 2005: 4; translation augmented by the author)

> We must not remain solely contemplative. We must not simply exploit our cultural heritage. We must create a new heritage to place alongside that of antiquity. We must create a new art, an art of our times: a Fascist art. (Mussolini to the students of the Academy of Fine Arts in Perugia, April 6, 1926; Schnapp and Spackman 1990: 235)

The early years of the Fascist rise to power (1922–1924) were characterized by political and economic crises for Mussolini and the Italian state. By the middle of the decade, Il Duce, perhaps encouraged by his mistress and cultural advisor Margherita Sarfatti, increasingly saw the efficacy in turning to the visual arts and to the ancient Roman past to create symbols and traditions of legitimacy and consensus. In speeches made throughout Italy, Mussolini called upon the nascent generation of artists to break with the stolidity of the recent past, as he had done in the political realm with the March on Rome in October 1922, and to forge a new aesthetic. The formal terms of this aesthetic were not explicitly described, but the feeling behind it was meant to be dynamic and revolutionary. The location for this new expression was more overtly described, in the city of Rome at least: Fascist buildings should arise alongside the ancient monuments once they had been liberated from more recent accretions. This juxtaposition of Roman and modern would provide reciprocal validation for the monuments and create the sort of grandeur typical of the ancient city and necessary for the Fascist one.

Mussolini did not have long to wait. In 1926 and 1927, a group of young architects calling themselves Gruppo 7 issued a series of articles declaring a new order of ideas in architecture. Described as an Italian form of Rationalism, the

movement would be distinct both from recent Italian styles and from modern movements outside Italy. The manifesto claimed few formal qualities as characteristic of rational architecture, but instead believed that style and form would be the natural products of the functional requirements of a building and the nature of currently available construction methods and materials (Kirk 2005: 74). This strong tie among context, function, and material led Gruppo 7 to conclude that their brand of rationalism was strongly linked to the classical tradition in its spirit and was therefore imbued with a unique *italianità* ("Italian-ness") or even *romanità*. "There is no incompatibility between our past and our present. We do not want to break with tradition; it is tradition that transforms itself and assumes new aspects by which few may recognize it" (Ciucci 1987: 78; Kirk 2005: 75). The Rationalists were departing profoundly in aesthetic terms from the eclectic neoclassicism of the nineteenth and early twentieth centuries, and yet were promoting their new movement as a return to a true classicism, one with closer ties to the "industrial, rational, and utilitarian" architecture of ancient Rome (Ghirardo 1980: 115).

The Rationalists received increasing support in professional journals, especially in Giuseppe Pagano's *Casabella*, but few major commissions following their initial manifesto. The group instead turned to domestic structures and temporary exhibitions to promote their vision and, increasingly, to associate the movement's dynamic and revolutionary creations with Fascism. In 1930, the Roman architect Adalberto Libera formed the Movimento Italiano per l'Architettura Razionale (MIAR) as a bureaucratic coalition of the avant-garde, designed to replicate the corporate or syndical organization within Fascism (Kirk 2005: 81). The following year, the MIAR staged a major exhibition in P.M. Bardi's gallery on the Via Veneto, which showcased some of the Rationalists' completed and ongoing projects. The opening of the exhibition was attended by Mussolini himself, and Bardi saw the presence of Il Duce as an opportunity for Rationalism to be adopted as the official state architecture (Doordan 1983: 128). To bring this about, Bardi devoted a section of the exhibition's catalog to a direct address to Mussolini, describing Rationalism as the functional expression of Fascism and calling for art and architecture to come under direct state control. More significantly, Bardi also used the exhibition to denigrate the other architects and movements that did not fulfill his criteria, and thus did not hold up to the promise of Fascism. One large room included a massive photo montage entitled "Panel of Horrors," which juxtaposed recognizable recent projects with cheap fashion cutouts and random words like *nulla* (nothing) and *miracoli* (miracles). Within the montage, buildings by major Italian architects, including Armando Brasini and Marcello Piacentini, were portrayed as tacky and disordered disasters in contrast with the superior lines of the Rationalist structures.

Criticism was swift and not directed simply at Bardi's montage, but at the Rationalist movement in general. Marcello Piacentini in particular took up the

cause of defending Italian architecture against the Rationalists. Piacentini is best known for his role in several of the major Fascist projects of the 1930s, as shall be explored below, but at this time he was already strongly entrenched in the official hierarchy of the discipline, as professor of architecture at the University of Rome and editor of the syndicate journal, *Architettura e Arti Decorative*. In both newspaper editorials and scholarly articles, he likened the Rationalist movement to Bolshevism and rejected the movement's claims to classicism and *romanità*. The National Syndicate of Architects, the organization to which all professional architects had to belong, threatened Libera with expulsion and issued a formal censure to the MIAR (Doordan 1983: 129). By the end of 1931, the MIAR had been dissolved, but Rationalists actually became more present in major architectural competitions following the crisis. Its members were absorbed back into the syndicate structure and sought compromise rather than conflict with the individuals and styles that had been attacked in Bardi's montage.

Piacentini too softened his position towards the Rationalists, as can be seen in his positive reviews of Rationalist works in *Architettura* following the dissolution of the MIAR. As a jury member for the Santa Maria Novella train station competition, he voted in favor of the controversial Gruppo Toscano design described above (Ghirardo 1980: 112–113). Perhaps most telling was his inclusion of several of the movement's architects in the planning of two major Fascist projects that he orchestrated: the Mostra della Rivoluzione Fascista (Exhibition of the Fascist Revolution) in 1932 and the new Città Universitaria (University of Rome campus, 1932–1935). For the latter, Piacentini included architects associated with a wide range of modern architectural movements, from the committed Rationalists Pagano and Michelucci to the more conservative Arnaldo Foschini. At the same time, all of their individual buildings were strategically placed within an organized axial framework reminiscent of an idealized Roman forum, with the administration building (the Rettorato) designed by Piacentini himself at its center. This structure epitomized the style of moderation and compromise forged by its designer: a stripped monumental classicism in travertine and marble that was designed to look both forward to the modern and back to the ancient (Figure 23.1). This style, characterized by large axial spaces where simplified traditional architectural elements and materials are implemented on a grand scale for their aesthetic rather than functional qualities, would come to dominate Fascist architecture in the latter part of the regime, in projects such as Morpurgo's Piazzale Augusto Imperatore.

Yet Piacentini's claims to *romanità* and adherence to Italian tradition were also called into question as soon as the plans for the Città Universitaria were published in *Architettura* in 1933. Ugo Ojetti, prominent art critic, founder of several important scholarly journals, president of Alfa Romeo, and committed Fascist, saw the designs of Piacentini and his collaborators as redolent of the International Style and therefore as not representative of either Italian tradition



Figure 23.1 Marcello Piacentini, Administration building of the Città Universitaria in Rome with the statue of Minerva by Arturo Martini (1932–1935). *Source*: Alinari/Art Resource, NY.

or Fascism (Lazzaro and Crum 2005: 27). In an open letter of February 1933, in his journal *Pegaso*, Ojetti bemoaned the loss of traditional forms in modern architecture, explaining his definition of the Roman style in almost moral or spiritual terms:

> For more than twenty centuries the arch, vault, and column have been the signs of Rome. The arch and vault were symbols of imperial Rome, not only visibly, but in structure and substance, in the way they did not slash, but rather embraced the space; in the way the arch flexed to create another sky and offered more security, to protect man; in the way they dominated and regulated the opposing

> forces … Equilibrated forces and Roman justice could not have had a clearer symbol, more easily perceived. The world accepted arches and vaults like it accepted the norms of Roman rule. (Neri 1982: 8)

By watering down or omitting the native formal elements of the arch and the column, Piacentini and his compatriots were weakening Fascism's imperial heritage, especially when these modern forms were used in juxtaposition with ancient buildings.

Having been attacked as a sterile traditionalist only two years before, now Piacentini was ironically forced to defend the modernist aspects of his buildings. In the pages of *La Tribuna*, he returned to some of the same terms invoked by the Rationalists, namely the dependence on material and function to determine architectural form and the importance of the "spirit" of *romanità* rather than its formal elements. "The vault became a sublime expression, representative of architecture and of Roman civilization, but the genesis of this structure was purely technical. It is not the technical form that discloses the soul of a nation but the revelation of the expressive and lyrical element" (Neri 1982: 11). Piacentini also cited the traditional materials, such as travertine and brick, that would clothe the concrete constructions of the Città Universitaria and the functional and axial design elements that would align the structures with the organizing spirit of Italian architecture. "Therefore they will be very Italian, or rather very Roman buildings, even if they will have neither arches nor columns" (Neri 1982: 12). Ojetti replied to this semi-Rationalist defense the following month, throwing Piacentini's own words back at him:

> With some exceptions, the prime difference between the architect and the engineer has always been this: the architect dominates the materials, stone or brick, concrete or cement, steel or glass, and he manipulates them with his artistic eye; the Engineer then obeys. Better: in Italian architecture the spirit has always dominated the material, and this is the first facet of our art. These are your words in the *Dedalo* of January 1931. (Neri 1982: 16)

For Ojetti, it was the immutable constant of Roman tradition that provided the underlying foundation for Fascism, while modernity was indefinable and ephemeral. Thus tradition should be paramount in all aesthetic decisions, and "modern" or functional design should be limited to structures with modern functions, such as train stations and post offices. Piacentini did not respond directly to Ojetti's last missive; the Città Universitaria project went forward as planned.

This section provides only the most basic overview of the formative debate over the creation of a Fascist art in the late 1920s and early 1930s;

similar confrontations and discussions were undertaken by artists, writers, policy makers, and critics in the popular and scholarly press (Schnapp and Spackman 1990; Fraquelli 1995; Stone 1998). But architecture held a particular position in the visual expression of Fascist ideology, particularly in the Rationalist mode of form and style following function: structures built to serve Fascist purposes were necessarily physical manifestations of the idealized structure and ethos of Fascist society. It is a significant fact that most of the iconic structures and projects associated with the Fascist era in Rome (i.e., the Foro Italico, the Piazzale Augusto Imperatore, and EUR) were planned during and following the aesthetic and theoretical debates enumerated above. This discourse reveals the issues at hand behind all civic projects, as architects sought to reconcile the competing needs of breaking with the past in the name of modernity and aligning with antiquity to establish legitimacy. There was a profound difficulty in establishing a single set of formal elements associated with Fascist architecture, since designers relied on the subjective "spirit" of both Fascism and antiquity for inspiration. Each architect and cultural theorist focused on different elements, materials, and themes, as well as various eras of Roman architecture, in defining what was "truly Roman." Thus even within grand architectural projects commissioned as show-pieces of Fascist ideology, such as the Città Universitaria, a wide range of architectural styles were explored and presented as expressive of the regime's ideals. Furthermore, the relationship with Roman tradition remained an issue, not simply as a description of a movement but as a defense or justification. *Romanità* and classicism were constantly invoked, particularly by the Rationalists, but the definitions of these terms varied depending on context (Ciucci 1987: 77). Finally, while every architect, critic, and bureaucrat poked his nose into the controversy, the real audience for all of these theatricals, Il Duce Mussolini, remained aloof from the specifics of the debate and spurred it on with a variety of quotable yet meaningless statements. In his conversations with the journalist Emil Ludwig between March 23 and April 4, 1932, Il Duce declared that "architecture is the greatest of all the arts, for it is the epitome of all the others." Ludwig responded, "Extremely Roman," and Mussolini confirmed, "I, likewise, am Roman above all" (Painter 2005: 19).

These bureaucratic machinations and professional debates only go part way towards explaining how Fascist architecture evolved in relation to Roman architecture; additional factors came into play when these architects came into direct contact with ancient Roman monuments, and when the representatives of archaeology, engineering, and urban planning also exerted their influence.

2. *Il Stile Littorio* in Practice: The Via dell' Impero 1931–1938

> Within five years Rome must appear marvelous to all the people of the world: vast, ordered, mighty as it was in the time of Augustus. You will continue to liberate the great oak of everything that oppresses it … The millennial monuments of our history must tower over us in their requisite solitude. (Mussolini on the Capitoline, December 31, 1925; *Scritti e discorsi V*: 244–245).

> In Rome architecture is made and unmade rather more than elsewhere. (Margherita Sarfatti in 1925; Ades, Hobsbawm, and Ascherson 1995: 120).

In 1931, the year that saw the rise and fall of the MIAR, the Fascist government also initiated the dramatic urban intervention for which it is perhaps best known: the creation of the monumental boulevard of the Via dell'Impero, today known as the Via dei Fori Imperiali. The construction of this road was intended to fulfill a wide range of contemporary needs and policies, including the improvement of traffic flow, the eradication of alleged slums, and the isolation and restoration of ancient monuments – all urban problems that had stymied previous administrators of the Eternal City. The project was also undertaken to provide a literal in-road for modern architecture and design in the heart of the ancient city and became the sought-after locus for a variety of Fascist monuments, from the small and functional to the monumental and fantastic. Thus the project provided the opportunity to create visual and ideological confrontations between the ancient past and the Fascist future, and to inscribe the role of each phase of history on the fabric of the city.

The desire to open up a new thoroughfare between the Piazza Venezia and the Colosseum pre-dates the unification of Italy in 1870, and various solutions both practical and radical were proposed in the late nineteenth and early twentieth centuries (Kostof 1973: 16–17). One of the most notable sought to extend the Via Cavour with a viaduct over the Forum Romanum, while others proposed more selective surgery. But all pre-Fascist projects regarded the archaeological wealth of the area as a practical impediment to any modern improvement. Soon after the March on Rome, Mussolini and the Fascists had inverted this dialectic, as is evident from the quotation from his 1925 speech above. The archaeological context *required* their intervention: to isolate the ancient monuments from later accretions and reveal once again the grandeur of antiquity and in turn to underscore the break with the inefficacy of the recent past. In 1924, the investigation of the area began under Corrado Ricci as an archaeological project to uncover the remains of the imperial *fora*, and important sections of the Forum of Augustus in particular were revealed over the following six years (Ridley 1986: 21–22). Yet this project could also be

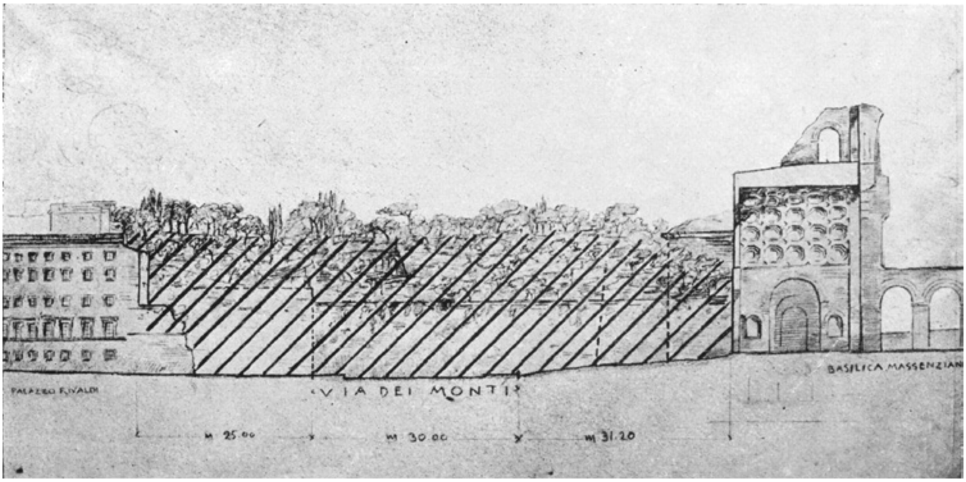


Figure 23.2 Section drawing of the Velia between the Villa Rivaldi and the Basilica of Maxentius (1932). *Source*: Muñoz 1932a: 30.

viewed as one of the regime's first forays into the policy of *sventramento*: the wholesale clearance of primarily post-Renaissance structures, despite their civic use, in favor of earlier monuments important for their historic value.

In early 1930, Mussolini directed the governor of Rome to develop a new urban plan for the city, one that would restore and revive "monumental Rome" (categorized as *Roma antica* and *Roma cristiana-monumentale*), suppress the structures added to the urban fabric since 1870, and encourage the creation of a *Roma modernissima/fascista* (Kostof 1973: 21). The Piano Regolatore of 1931 focused on the organization of the ancient center and the creation of new areas for expansion, concepts that went hand in hand since the planned clearances would necessitate the eviction and resettlement of large numbers of urban dwellers. Among the numerous projects delineated in the Plan, a V-shaped boulevard 60-m-wide, was proposed to extend access from the Piazza Venezia to the Colosseum and beyond. The road was to proceed in a straight line to the Basilica of Maxentius, then turn east sharply ("a biaonetta" or bayonet-like) to circumnavigate the Colosseum and continue on to the Lateran (Figure 23.2). Demolitions began at the north end near the Piazza Venezia as early as August 1931; buildings were targeted for demolition based on their obstruction of views between the Palazzo Venezia and the nearest ancient monuments. In the words of Antonio Cederna, "from this moment demolition became a ritual ceremony, an 'art' … it started the climate of suspense that the press fully encouraged in the following months" (Insolera 2001: 126). At the southern end near the Colosseum, where the topography had not been urbanized, the month of November alone was allocated for archaeological soundings, and excavation and demolition work

began at both ends of the road in early December 1931 (Muñoz 1932b: 521; Ridley 1986: 34). The two clearance teams met at the middle in April, and the Via dell'Impero had its official inauguration on October 28, 1932 – the tenth anniversary of the March on Rome that also saw the opening of the Exhibition of the Fascist Revolution. The Via dell'Impero was not officially opened to the public until April 1933 (Manacorda and Tamassia 1985: 185).

The project was overseen by one of the most influential figures in Fascist-era archaeology in the city of Rome, Antonio Muñoz, the Inspector General delle Antichità e delle Belle Arti from 1929 to 1944 (Ridley 1986: 44). Despite his credentials as an archaeologist and over the objections of Ricci, Muñoz made the decision to execute a "*romanum opus*" or "Roman job" (Muñoz 1932a: 14) and continue the new road past the Basilica and all the way to the Colosseum in a straight line instead of the V-shape indicated by the 1931 plan. In this way, the new road would provide unobstructed views of many recently revealed imperial structures (even as it buried others) while creating a modern thoroughfare for motorized traffic. This drastic solution, previously avoided and not officially sanctioned until it had already been completed (Barroero *et al.* 1983: 127) required the removal of the Velian Hill, an area of the ancient city that had not been explored archaeologically and was the site of the extensive grounds of the Renaissance Villa Rivaldi. In his publication of the two major road projects he oversaw, *Via dei Monti e via del Mare*, Muñoz dubbed the Via dell'Impero the "Street of Mountains," subtly linking his work on the Velia with the removal of the Oppian to create Trajan's Forum. Paradoxically, Muñoz also claimed that the "excavation" of the Velia yielded no significant ancient remains, yet the photographs and descriptions of the work, even in his own publications, belie his disclaimers. Among the finds were the skeleton of a prehistoric elephant, late republican gardens and houses, and extensive *cryptoportici* and multi-storied structures of the early imperial period (Muñoz 1932a; Ridley 1986: 34). Perhaps most significant was the discovery of the Compitum Acilii, a crossroads shrine of the Augustan period known from ancient sources (Insolera 2001: 129). All of these structures, along with the medieval and Renaissance remains overlying them, were completely razed.

The focus for Muñoz (perhaps at the behest of Mussolini himself) was not on the excavation of structures that would improve the archaeological understanding of early Roman life and society, but on the isolation of ancient monuments of clear imperial and architectural pedigree, most particularly the Basilica of Maxentius. "The most tangible result [of the construction of the road], both archaeological and artistic, is constituted in the liberation of the posterior wall of the Maxentian Basilica, previously suffocated by enormous earthworks, today free in its full extension" (Muñoz 1932a: 26). Drawings and descriptions of the Basilica from the years preceding the road project

indicate that the Villa Rivaldi gardens completely covered the central nave of the east wall; the Basilica's windows were so packed with earth that they could serve as a sort of loggia from which to view the Forum Romanum below (Figure 23.2; Minoprio 1932: pl. II; Insolera 2001: 127). The comprehensive clearing of the perimeter revealed a previously unknown ancient road (about 6.5 m wide) to the east, between the Basilica and a contemporary late-antique retaining wall pierced by elegant niches decorated with painted stucco. This road provided Muñoz with an ancient justification for his radical plan: "the problem of communication with the Colosseum was already an issue for the ancients that *they* resolved with a little street [*una stradetta*] six meters wide; today *we* have one that is thirty meters wide, twenty for driving and ten for sidewalk" (Muñoz 1932a: 26, emphasis added by the author.).

Considerable restorations of the Basilica were also undertaken before and during the construction of the Via dell'Impero, but these works too were only incidentally documented alongside the buildings discovered and destroyed in the excavation process. The emphasis in these restorations was the minimization of any visible differentiation between the ancient remains and the modern restorations and the imbuing of the newly liberated structures with new order and strength. To give the appearance of seamless unity and structural power, all post-antique additions and decorations were stripped from the Basilica and the parallel niched wall to isolate the simple forms and materials beneath (MacDonald 1982b: 303–304). It was also common for contemporary restorers to replace missing elements with convincing substitutes from the same era (Lazzaro and Crum 2005: 20 and n. 48), particularly in high-profile structures like the Basilica. Mussolini's builders even used brick stamps in emulation of imperial practice (MacDonald 1982b: 311). Recent scholarship has determined that the Fascist-era interventions were quite substantial, with great attention devoted to the facade lining the new road (Giavarini 2005: Figures 2.38 and 2.40).

This spotlighting of the Basilica of Maxentius over some of the other high-profile structures in the area provided Muñoz and Mussolini with some significant fodder both to justify the intervention and to present the project as protecting and improving upon ancient models. As explored by Elisha Ann Dumser in her dissertation on Maxentian patronage, Maxentius consistently depicted himself on coins as *conservator urbis suae* "preserver of his city" and undertook the restoration of many earlier imperial structures ravaged by fire early in his reign (2005: 293–294). The original construction of the Basilica also sought to focus traffic onto a monumental boulevard, in this case the Sacra Via, and necessitated the cutting of a portion of the lower slopes of the Velia to provide a level platform for its foundations (Dumser 2005: 73, 288). Perhaps most importantly, Maxentius's Basilica made use of traditional forms and materials to create a revolutionary and unprecedented structure that at

once established the emperor's legitimacy and differentiated him from his past and immediate predecessors. In all of these ways, Maxentius and his Basilica served as an understated imperial model not just for Mussolini and the Via dell'Impero, but for the subsequent architectural additions to the zone as well. It is perhaps telling that Muñoz refers to the structure throughout his writing as Basilica di Massenzio, despite the contemporary tendency of attributing the building to Constantine. Mussolini later would promote certain comparisons between himself and Constantine as fellow protectors and promoters of Christianity, thus a more overt alignment with Maxentius was likely not constructive.

The importance Muñoz placed on the Basilica was further borne out in the first modern architectural project to grace the new road. The aggressive removal of the Velia left an open mound of earth on the east side of the street across from the newly exhumed and restored structure, yet as late as September 1932, nothing had been done to remedy this considerable aesthetic and urbanistic oversight. Despite the contemporary architectural debates and the obvious cachet of the building site, no architectural competition was conducted, undoubtedly due to the time constraints imposed by the October opening. Instead, Muñoz himself designed a monumental retaining wall and staircase with the help of Cesare Valle, a young architect attached to the Technical Service of the Governorato. He drew direct inspiration from the Basilica's restored plain arches and from the late antique niched wall newly discovered in the Velia excavation. The Muñoz–Valle wall, constructed in red ancient-style bricks with plain travertine socle and cornice, is pierced by nine decorative niches lined with dark painted plaster (Figure 23.3). The central niche is open to the sky to provide a view of the Villa Rivaldi gardens above; the fountain below was constructed from two ancient basins, one of colored marble and the other of granite. The plain brick between the central niches was decorated by pairs of 5-m-high *fasces* in stark white travertine (Muñoz 1932a: 32–35). The top of the wall was lined with an iron balustrade to facilitate viewing of the new road and the basilica and forum beyond, in essence replacing the vista over the heart of the ancient city formerly provided by the Basilica itself. With its visual and structural parallel in the ancient remains across the street, the intended message of Muñoz's design was clear: Fascism had the ability to restore and improve upon what imperial Rome had accomplished. While the Basilica, along with its retaining wall to the north, had originally been designed to be isolated from the Velia and to focus traffic onto the Sacra Via and the Forum Romanum (Dumser 2005: 285), the construction of the new retaining wall integrated the Basilica into the wider Fascist urbanistic plan and made it serve a visual and symbolic purpose within that scheme. The structure owed its magnificence in this way to Fascist intervention; the grandeur of the past could only exist via a Fascist framework.



Figure 23.3 Antonio Muñoz and Cesare Valle, retaining wall for the Villa Rivaldi on the Via dell'Impero (1932). *Source*: Muñoz 1932a: 23.

Mussolini made two final demands before the road's inauguration that follow on this theme: that the name officially be changed to "Via dell'Impero" ("Street of the Empire") (Barroero *et al.* 1983: 21) and that bronze statues of the emperors be erected next to the now partially buried remains of the imperial *fora* they built.

The Via dell'Impero was inaugurated with an enormous parade headed by Il Duce, who promenaded slowly down the boulevard astride a military stallion, pausing only to admire the newly revealed ancient monuments, including the Basilica of Maxentius (Hyde Minor 1999: 152–153). By the next month, November 1932, plans were being hatched for the most momentous Fascist architectural project to date: the Palazzo del Littorio, a building to serve as the world headquarters of the Fascist Party and as a permanent home for the Exhibition of the Fascist Revolution and the catalyst for the Chamber of Deputies debate described in the introduction. A plot was chosen at the corner of Via Cavour and Via dell'Impero across from the Basilica (including the area recently enclosed by Muñoz's retaining wall), and a national competition was announced in the summer of 1933 (Barroero *et al.* 1983: 150). The features of the building were described in quite specific terms, based on the functional requirements of the various entities to be housed there, as were the physical relationships with surrounding ancient monuments. The Palazzo was to be constructed at a distance from the road, so as to provide space for large rallies and gatherings in front of it, but not so far back that the visibility of the structure

was compromised. The height of the Palazzo was not to surpass that of the Basilica of Maxentius across the street, undoubtedly to preserve the symbolic value of the ancient structure, though decorative features deemed necessary for aesthetic reasons were not subject to this restriction. In addition to offices for the Fascist Party and a permanent exhibition hall for the Exhibition of the Fascist Revolution, the new structure would contain an official suite for Mussolini himself and an *arengario*, or speaker's platform. Construction materials were at the designer's discretion, but the colors needed to harmonize with the surrounding monuments. As for architectural style, however, the terms were notably vague. "The architectonic concept must correspond to the grandeur and power undertaken by Fascism to bring about the renewal of a national life that sustains the traditions of Rome. The Great Edifice must be worthy to hand down the Mussolinian epoch to posterity, with enduring and universal character" (Paolozzi 1936: xvi–xvii). Here again Italian architects were being asked to create an architectural style that would be the physical representation of Fascism and would make manifest the symbiotic relationship between contemporary power and ancient tradition.

The competition was open to all Italian architects, provided of course that they were enrolled in the Fascist Syndicate of Architects. The jury was comprised of well-established architects, archaeologists, and Fascist party officials, including Achille Starace (Secretary of the Fascist Party), Prince Boncompagni-Ludovisi (the appointed Governor of Rome), Corrado Ricci, and Armando Brasini; this body and the competition as a whole was overseen by the ever-present Marcello Piacentini. The high-profile location, the politically charged roles that the structure would fulfill, and the personalities involved inspired commentary from all sectors of Fascist society as soon as the competition was published. Giuseppe Pagano viewed the competition as an opportunity to free modern architecture from the shackles of the past:

> The fight will be great … Two worlds will clash once again: one that is static, in love with the forms and the bombast of the past, which defines itself as the defender of *romanità*, of the supreme laws of the Italic spirit and tradition; and one, which is progressive and alive, that will derive its vigor from the frank and eternal purity of simple things and that will attempt to express the ideal of the modern Italian with the lines and cadences of today without recourse to the dimensions of the dinosaurs, the rhetoric of the Spanish baroque, or the formulae of Vitruvius. (Etlin 1991: 223; Ades, Hobsbawm, and Ascherson 1995: 123)

The traditionalist view, which saw this avoidance of *romanità* as Internationalism and virtual treason, was voiced in the Chamber of Deputies debate described above. Though Mussolini's subsequent defense of modern

architecture quelled the accusatory rhetoric on the face of things, the debate presented Piacentini and the competing architects with a remarkably delicate balance to strike.

Over 100 entries were submitted by the April 15 deadline, with most of the big names of Italian architecture participating, and opinions of the high-profile designs appeared in the following months in all the major journals and newspapers. Seventy-one proposals were selected for a major exhibition to open in September. The designs provided a full range of choices to express Fascist ideology and the new Fascist Style, from slavish imitations of Roman buildings to hyper-modern palaces of glass and concrete. An example of the former may be seen in Fernando Biscaccanti's proposal, which would have housed the Party in a new Temple of Fascism festooned with coffering that mimicked that of the Basilica of Maxentius (Paolozzi 1936: 151). At the other end of the spectrum were designs like the one submitted by the BBPR, a group of young Rationalist architects from Milan, consisting of blocks of construction so sleek and unadorned that they appeared made by machine (Kirk 2005: 110–111 and Figure 6.29). The group even included airplanes flying overhead in the photo of the model to emphasize this mechanistic aspect. Yet it was the designs that pursued a more abstract expression of both *romanità* and Fascism that struck a chord with the jury. Piacentini reported to Il Duce in late December, and 14 designs were chosen as preliminary winners (Ades, Hobsbawm, and Ascherson 1995: 123).

A brief examination of two of the premiated projects illuminates the ways contemporary architects attempted to mediate between *romanità* and modernism in formal terms (Manson 2011). Luigi Moretti, a young architect who had worked with Ricci in the area around Trajan's Markets, proposed a structure of white travertine divided into several discrete sectors. The largest mass, set back considerably from the Via dell'Impero, would contain the bureaucratic offices of the Party; a large cylindrical structure in middle ground would house the Exhibition of the Fascist Revolution and Mussolini's suite, resting atop a low supporting building containing the reception hall and meeting rooms. On the sidewalk directly in front of this monumental entrance, Moretti proposed to install the newly reunited fragments of the Ara Pacis. "In this way the whole modern structure would take on an intimate light and a profound significance; the great Fasces as a foundation for the Ara Pacis seek to monumentally affirm the desire to carry on, defend, and surpass our grand past" (Paolozzi 1936: 54). The Palazzo itself was pure modernism, but the incorporation of a restored ancient monument as well as broadly neoclassical friezes and statuary within the complex sought harmony with the surrounding antiquities.

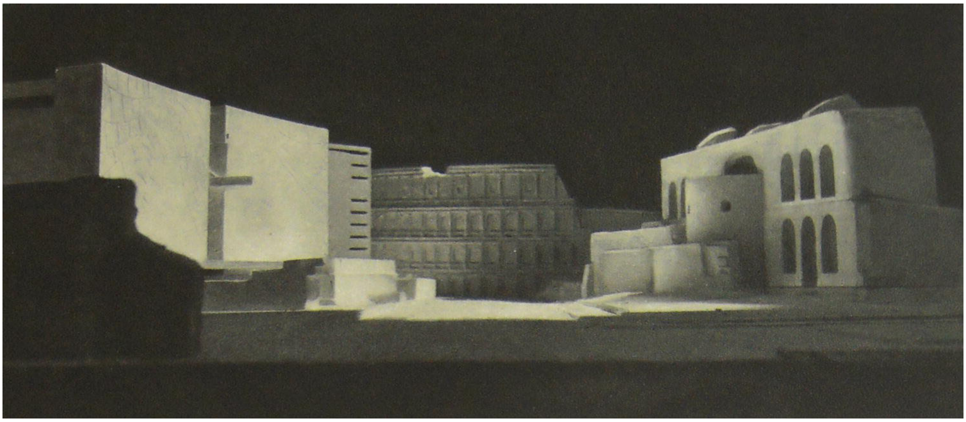


Figure 23.4 Giuseppe Terragni, Luigi Vietti *et al.*, Project A for the Palazzo del Littorio on the Via dell'Impero (1934). *Source*: Paolozzi 1936: 5.

Perhaps the most analyzed designs were those submitted by a Milanese group that included the noted Rationalist Terragni (Figure 23.4). In Project A, the group sought to evoke ancient Rome by means of simple orientation, material, and form, but in a particularly modern combination. Identifying the construction of walls as a fundamental theme in Roman architecture and engineering and the Basilica of Maxentius as particular inspiration, the project proposed a structure on this theme in a material with significant imperial associations (red porphyry): a massive concave facade on an orientation mirroring the Basilica of Maxentius and aligning with the Forum of Trajan to the north (Paolozzi 1936: 1; Rusche 1989: 31). Unlike a Roman wall, the porphyry curve would not provide support for the Palazzo, but instead would be itself elevated by the reinforced concrete within and held in tension by the bands of steel that radiated from the supporting trusses (Ades, Hobsbawm, and Ascherson 1995: 124), giving the appearance of a suspension bridge on the surface of the stone. The continuous facade would be interrupted only by a small platform to serve as Il Duce's *arengario*. "From there everyone will be able to see him. He will be like a God, against the sky, with no one above him" (Paolozzi 1936: 1–2). Here the relationship between modernism and antiquity is profoundly abstract, producing a concept of Fascism that is equally broad and almost mythological. "The fundamental idea that has informed our design is the concept of universality, of unity, of power, of knowledge in direct connection with the imperial traditions of the Roman forum" (Paolozzi 1936: 1–2). The group also submitted a second proposal (Project B) that was even more abstract and avant-garde. Stark prismatic forms contrasted sharply with the ancient monuments, while basic proportional principles based on ancient Greek mathematics achieved an immutable link with the past. "For Terragni this represented a basic archaic

system that could be used to represent the foundations and birth of a new era – the Fascist era" (Rusche 1989: 33).

On February 19, 1935, Mussolini himself initiated the necessary demolitions with a blow of the pick, but by early 1936, the plans for the Palazzo del Littorio had changed (Insolera and Sette 2003: 84–87). The 14 "winners" were asked to revise their projects for a new site near the Pyramid of Cestius, at the foot of another Fascist boulevard, the Via dei Trionfi (Street of Triumphs, today the Viale Aventino). The winning project by Del Debbio, Foschini, and Morpurgo was finally constructed at a third site, the Foro Mussolini (Foro Italico), far from the historical center. The precise reasoning for abandoning the site on the Via dell'Impero is unknown, but the triangular plot did present some serious logistical issues and may have been simply too politically and visually charged to touch. Giuseppe Pagano, the Rationalist critic and architect who had set such store in the Palazzo del Littorio for the establishment of modern architecture, had declined even to submit a project for consideration, "arguing that it was impossible for modern architects to compete with the Imperial Fora, the Basilica of Maxentius, and the Colosseum" (Ades, Hobsbawm, and Ascherson 1995: 123).

Another influential factor must have been a change in focus for the Fascist regime towards the actual re-creation of the Roman Empire through military intervention and colonization. On October 3, 1935, Italian troops invaded Ethiopia, and Addis Ababa fell on May 5, 1936; five days later, Mussolini declared the rebirth of Italy's empire to crowds in the Piazza Venezia. As the "Street of Empire," the Via dell'Impero became an important backdrop for displaying Mussolini's ambitions, primarily via small physical alterations and almost constant bombastic pageantry. In 1934, four stone maps charting the growth of the ancient Roman Empire had been installed on the outer wall of the Basilica of Maxentius, further characterizing that structure as part of the stage-scenery for Fascist display; on October 28, 1936, a larger fifth map was added to complete the set, showing the new acquisitions of the Italian empire (Hyde Minor 1999: 153–154). The boulevard continued to be the site of numerous military parades and displays, most notable being the ceremonies surrounding the bimillenary of Augustus's birth in September 1937, and Hitler's state visit to Rome in May 1938. For the latter, massive Roman-style military standards bearing the insignia of the Italian and German regimes were installed along the Via dei Trionfi and Via dell'Impero, and some of the ruins along the parade route were tidied or removed to make the area more presentable. Most notably, several pieces of fallen vault from the Basilica of Maxentius were moved, and additional restoration of the coffering was undertaken (Giavarini 2005: 135–136). As part of this general clean-up, the Temple of Venus and Rome had also been excavated and restored by Muñoz, and the fountain next to the Colosseum known as the Meta Sudans had been removed

(Ridley 1986: 36). Later in 1938, a final attempt was made to fill the Palazzo del Littorio building site; Terragni submitted designs to Il Duce for a Danteum, a monument that would be an architectural metaphor for Dante's poetry and based on elaborate geometric principles (Etlin 1991: 517–568). The plans were approved, but this project too was never carried out. The ancient monuments were left isolated in their infinite solitude, as Mussolini had planned, yet they were accompanied by modern projects intended to be temporary (Muñoz's wall) or that were destructive by nature (the Via dell'Impero itself) as Fascism's legacy.

3. Conclusions

The relationship between architecture and *romanità* during the Fascist period was particularly complex because it was more than a one-to-one correspondence. The dichotomy was complicated by a third party, Fascist ideology, that sought to influence them both, or influence the one via the other. Thus entities and individuals that would normally have only notional influence over architectural and archaeological decisions, or would have no stake or interest in aesthetics, saw the interpretation of the Roman past and the forging of a Fascist style as twin opportunities for political and social influence. Similarly, due to this architecture-*romanità*-ideology trinity, archaeologists found themselves involved in the construction of new monuments in tandem with the conservation of old ones, and dabbling in current political and social commentary in their analysis of the past. As Diane Ghirardo (1980) has explained, the architects and archaeologists of the Fascist period should neither be absolved as coerced participants nor condemned as collaborators. Some were certainly ardent Fascists while others were supportive of Italian cultural identity or simply ambitious, but all were required to be members of the party syndicate for their professions. Fascism provided the framework for all major operations in the public sphere, and those who wished to work in this environment could not help but participate in the movement, or even praise it directly or indirectly through their work. The fact that Fascism itself was ill-defined and ever-evolving only complicated matters further. The "aesthetic pluralism" that sprung from these "diversities, contradictions, and ambiguities," even within supposedly unified artistic and architectural movements, was the inevitable and undoubtedly purposeful result (Stone 1998: 4). This complicated web of relationships also guaranteed that even the most high-profile projects could be altered, augmented, streamlined, or completely abandoned based on a wide array of influences and factors.

The case study of the Via dell'Impero illustrates not only the variety of ways Fascist projects sought to emulate Roman architecture, but also how Roman

monuments were made to be viewed as Fascist in themselves. The creation of gigantic rectilinear boulevards such as the Via dell'Impero and the Via del Mare (Via del Teatro Marcello) liberated the ancient monuments from later construction, but also divorced the structures from their ancient contexts and integrated them into a series of Fascist-framed vistas. The Colosseum, for example, with the removal of the Velia and the construction of a road at the level of its base, forever lost its association with the depression of the lake of the Domus Aurea, instead becoming a monumental roundabout best seen from a passing car (Barroero *et al.* 1983: 46). With the construction of wide thoroughfares and axially arranged structures in new Fascist mini-cities, as seen in the Città Universitaria, the Foro Italico, and EUR, the physical experience of Roman and Fascist spaces became aligned. Furthermore, the ideological correspondence between ancient and modern structures was repeatedly activated via the parades, speeches, and other rituals that were enacted in their presence. Finally, it could be argued that the postwar treatment of Fascist-era structures, ranging from apposite removal of Fascist symbols to passive neglect, has brought the buildings of the two eras into closest correspondence, as ruined yet respected symbols of the history of Rome.

GUIDE TO FURTHER READING

The most comprehensive work on the personalities, movements, and events that shaped Fascist-era architecture remains Etlin (1991). Kirk's two-volume study (2005) is broader in scope, covering the period from Italian unification to the twenty-first century, and is geared toward a more general audience. A work concentrating on the city of Rome is Painter (2005). Using a mix of scholarly and popular media sources, he provides a rich and eclectic account of Fascist-era architecture, archaeology, urban planning, and politics. The volume co-edited by Lazzaro and Crum (2005) deals specifically with the Fascist appropriation of the past in both visual culture and social policy, with several chapters on antiquity and others on the Middle Ages and Renaissance. The best sources for photographs of the Via dell'Impero (Via dei Fori Imperiali) and other major Fascist projects in the city of Rome are Italo Insolera's numerous works, in particular, Insolera (2001), which also includes excerpts (in Italian) from Antonio Cederna's seminal text on Fascist archaeology. There is currently little scholarship on Fascist-era excavations in English, but Ridley (1986) provides short descriptions of all of the major projects and detailed bibliographical notes on Fascist-era archaeologists and scholars.

CHAPTER TWENTY-FOUR

Visualizing Architecture Then and Now: Mimesis and the Capitoline Temple of Jupiter Optimus Maximus

Melanie Grunow Sobocinski

Introduction: Theorizing Architectural Representation

Through a case study of images depicting Rome's Capitoline Temple of Jupiter Optimus Maximus, this chapter explores fault lines in the interpretation of ancient artistic and modern scientific images of ancient Roman architecture. Coins from the Late Republic through the High Empire depict the Temple of Jupiter, including the first ever Roman coin issue to feature a temple, that of Volteius (ca. 78 BCE). Detailed relief representations survive from the second century CE. Because the Temple of Jupiter was arguably the most important temple in Rome, many modern plans, elevations, models, and three-dimensional reconstructions depict this structure, primarily in its first (archaic) and final (Domitianic) phases. I argue that the ancient concept of mimesis provides a useful lens for analyzing architectural representations both ancient and modern because it prompts consideration of artistic intent and audience response.

The phrase "visualizing architecture" can encompass phenomena as diverse as artistic representation, scientific documentation, verbal description, mental

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recollection, and imagination. It also implies the presence of a viewer, whose internal perception may or may not converge with the original intentions of architects and artists. Exploring the complexities of visuality and the gaze in detail, as Elsner (2007) does, is beyond the scope of this work. For ancient planning and construction images, see Haselberger (1997) and Chapter 8 in this volume.

Functionally, most surviving ancient images of buildings can be loosely termed propagandistic, in that they were created on behalf of the Roman government for public viewing, whereas modern visualizations are usually created for archaeological documentation, often intended only for specialists. Current and emerging professionals in the study of Roman architecture and related fields tend to evaluate images according to how correctly they reflect up-to-date knowledge of the building (how "trustworthy" or "useful" they are). The expectation that ancient architectural images ought to correspond exactly to actual buildings often results in scholarship that focuses on identification or the artists' perceived competence (see Guide to Further Reading). Perhaps this expectation develops through repeated exposure to modern images created for scientific documentation. At any rate, scholars writing about ancient representations of temples have generally avoided theorizing the subject.

I propose that the ancient concept of mimesis can help us analyze ancient and modern images of Roman architecture. While mimesis is an important term much used in foundational texts on aesthetics such as Plato's *Republic* and Aristotle's *Poetics* and much debated in commentaries on those works, here I follow Sörbom's interpretation (1966; 2002). Sörbom (2002) pulls one key point to the foreground: Greek and Roman discussions of image making consistently emphasize both the resemblance between object and representation and also the inevitable, even necessary discrepancies between object and representation (e.g., Pl. *Cra.* 432B–D; Arist. *Poet.* 1460b; Cic. *Orat.* 2.8–10). In this framework, appropriate viewer response begins with the awareness that the image is only partially similar to the original object. While the ancient philosophers considered the moral, metaphorical, and epistemological implications of these differences, I note patterns in these discrepancies and wonder why the artists consistently prefer some features to others. Here, I will use the phrase "theory of mimesis" to mean an interpretative stance that emphasizes the partial resemblance between artistic representation and subject and that investigates the reasoning behind interpretative choices, rather than assuming an intention of scientific documentation behind each image.

The primary sources discussing ancient art mostly address attempts to imitate people or nature, but the representation of architecture is clearly a parallel phenomenon. An architectural image can depict either a specific structure (cf. ancient portraiture, or better, cult statues frequently represented through copies, such as the Aphrodite of Knidos) or an idealized, generic type

(e.g., Zeuxis using several models to create a female ideal (Pliny *HN* 35.64)). For the ancient artists, recognizability was the goal, not exact resemblance. As I have argued elsewhere, ancient artists used redundant cues to promote correct identification when it was critical to the iconography of the entire composition (Sobocinski 2009). Common clues for representations of buildings include unusual architectural features, distinctive iconography and/or composition of sculptural programs, and inscriptions naming the building, its patron, or its honoree. The absence of detailed characteristics signals a generic building. Furthermore, as Plato noted, only a knowledgeable viewer can be expected to properly recognize and evaluate the accuracy of a representation (Pl. *Leg.* 668D–669B; Sörbom 1966: 173). Lack of data makes it extremely unlikely that we will ever be able to match every once-recognizable image to a particular ancient structure, although the many contested identifications show how tempting it is to try.

Features unnecessary to the correct identification of a structure in Roman eyes, such as proportions, exact number of columns, secondary sculptures, and ornamental moldings could be subordinated or eliminated; ironically, we often depend upon those very features to recognize and classify ancient structures. This gap between ancient and modern ideas about the essential aspects of architectural form lies at the heart of this analysis. Keeping these distinct approaches in mind helps prevent misinterpretation of those ancient images of buildings that resemble modern elevation diagrams.

For us, images encode and help create knowledge. Images record data compactly and memorably ("a picture is worth a thousand words"), clarify internal relationships, make unexpected patterns apparent, and help identify problems in the data or its interpretation (Ware 2004: 3–4; Frischer 2008: v–vi). New data and techniques inspire new reconstructions. The creation of plans, elevations, sections, isometric drawings, models, and three-dimensional virtual reality images requires not only documentation of realia but also educated guesswork to fill in missing elements. Making images, whether physical or virtual, confronts the scholar with practical questions that can be ignored when analysis is confined to words. In short, generating and reading images promotes questioning, interpretation, and further research. As cultural virtual reality (CVR) environments become more convincing, scholars have tested ways to help viewers distinguish between established fact and necessary speculation (Haselberger and Humphrey 2006; Pollini *et al.* 2007). Many recommend supplying both metadata ("a thousand words to explain the picture") and alternative versions to emphasize the mimetic qualities of reconstructions. Tertiary sources that omit metadata inadvertently imply a 1-to-1 correspondence between image and building. It is perhaps ironic that this discourse echoes ancient worries over the gullibility of the uneducated viewer (e.g., Pl. *Soph.* 234B).

Ancient representations and modern reconstructions are often more accessible and memorable than the ruins of badly damaged and built-over structures like the Temple of Jupiter Optimus Maximus. As a result, images may seem more real to us than actual remains. Yet resisting the temptation to reify images, whether ancient or modern, has several benefits. Appreciating ancient architectural images on their own terms encourages careful use of the evidence they preserve and creates new avenues for research. Appreciating modern architectural images as manifestations of particular artistic styles encourages mindful creation of new images and thoughtful use of familiar ones. In each case, the theory of mimesis facilitates both scrutiny and acceptance of the inevitable discrepancies between image and reality. It frames those differences as the result of intentional choices by the artist/scholar.

I have chosen a few revealing examples to illustrate these general principles (see Bastien (1978) for additional ancient images of the temple). As we examine ancient and modern images of the Capitoline Temple, we will see how the theory of mimesis helps us arrive at nuanced analyses. We should also be vigilantly aware that our desire to achieve an accurate understanding of antiquity is a goal foreign to antiquity itself.

1. Analyzing Ancient Images of Temple Facades

As noted above, the theory of mimesis accommodates both generic and specific images. For example, the late second-century-CE relief showing Marcus Aurelius sacrificing at the Temple of Jupiter Optimus Maximus (Figure 24.1) focuses on the iconography and composition of the pedimental and acroterial sculptures and prominently displays the temple's three cella doors, so that no doubt regarding the temple's identity is possible (Colini 1925: 182). By contrast, generic images can be recognized from the absence of identifying features. For example, an *as* of Domitian commemorating the *Ludi Saeculares* of 88 CE (Figure 24.2) shows one such generic temple. Although some have claimed that the figural scene, number of columns depicted, and wreath in the pediment place the event at the Temple of Jupiter Optimus Maximus, none of these elements is exclusively Jupiter's, as I have argued elsewhere (Hill 1989: 25–26; Sobocinski 2006: 591–596). In this case, the artist has represented the basic features that communicate the concept "temple," but nothing else. Standard conventions of Roman architectural representation include frontal facade view (which, while it superficially resembles a modern elevation view, should not be mistaken for one) and greater interest in iconographic identifying details than exact architectural documentation. Most images fall between these extremes of absolute identifiability and certain anonymity.



Figure 24.1 Panel relief of Marcus Aurelius sacrificing. Detail of the Temple of Jupiter Optimus Maximus (circa 176–180 CE). Musei Capitolini 807. *Source*: Sobocinski.

Even in an image like Figure 24.1, the resemblance between object and image is only partial, as the theory of mimesis emphasizes. In particular, four unfluted columns are depicted instead of at least six fluted columns; the building is shown reduced in scale compared to the people in the foreground; and the proportions of the building are tall and narrow rather than broad and low. Because the belief that the Temple of Jupiter Optimus Maximus was hexastyle depends on numismatic evidence, attempts to confirm the accuracy of the number of columns depicted in ancient images creates a circular argument. Features familiar from literary accounts, such as the temple's enormous size and expensive materials (Dion. Hal. *Ant. Rom.* 4.61.4; Tac. *Hist.* 3.72), are not evident in this image (or for that matter in any image, as such qualities do not easily lend themselves to relief or coin representation). We have no way to



Figure 24.2 *As* of Domitian. Reverse, sacrifice at a temple during the *Ludi Saeculares* (88 CE). *Source*: Yale University Art Gallery 2001.87.5805. Transfer from Sterling Memorial Library, Yale University. Image: © Yale University Art Gallery.

know whether this or any other surviving image records all the pedimental and acroterial sculpture from this building. We can only point out which images are the most detailed. I have documented a similar pattern of partial resemblances among images of Domitian's Temple of Fortuna Redux (Sobocinski 2009).

Notably, characteristics of ancient architecture that we find essential for categorization, such as architectural order, number of facade columns, and period style, were only partly salient for ancient artists and audiences. The debate over the architectural order of the second Temple of Jupiter Optimus Maximus, dedicated in 69 BCE, illustrates this point. Coins of Volteius (Figure 24.3) and Petillius (Figure 24.4 and Figure 24.5) and Vitruvius's descriptions of the temple (Vitr. De *Arch.* 3.3.5; 4.7.1–2) have been used to argue for Tuscan style columns (De Angeli 1996: 149). Coins of Vitellius and an anecdote from Pliny (Pliny *HN* 36.4.45) have been used to argue for Corinthian columns (Bastien 1978). A compromise – Corinthian capitals on an otherwise Tuscan temple – has also been suggested (Stamper 2005: 82; see Chapter 11). At stake here is our characterization of Sulla as patron: to what extent did he prefer innovative Hellenistic forms? Furthermore, did Rome's favorite architectural order, the Corinthian, have triumphal connotations? Finally, an attractive visualization lies in the balance. If Sulla indeed brought marble columns from the Temple of



Figure 24.3 Denarius of Volteius. Reverse, Temple of Jupiter Optimus Maximus (circa 78 BCE). *Source*: Yale University Art Gallery 2001.87.1577. Transfer from Sterling Memorial Library, Yale University. Image: © Yale University Art Gallery.



Figure 24.4 Denarius of Petillius Capitolinus. Obverse, eagle with thunderbolt; reverse, Temple of Jupiter Optimus Maximus (circa 43 BCE). *Source*: Yale University Art Gallery 2001.87.2108. Transfer from Sterling Memorial Library, Yale University. Gift of Prof. Tracy Peck. Image: © Yale University Art Gallery.

Olympian Zeus in Athens and had them used in the rebuilding of the Temple of Jupiter Optimus Maximus in Rome, Pliny's tale (*HN* 36.4.45) lets us photograph still-standing columns of the Olympieion in Athens to illustrate something of the scale and magnificence of the late republican Capitoline.



Figure 24.5 Denarius of Petillius Capitolinus. Reverse, Temple of Jupiter Optimus Maximus (circa 43 BCE). *Source*: Fitzwilliam Museum CM.LS.3146-R. Image: © Fitzwilliam Museum, Cambridge.

Pliny's anecdote requires corroborating evidence. Chronological problems and textual ambiguity suggest that the columns might have been destined for a different temple on the Capitoline (De Angeli 1996: 149). Two sets of columns can properly be described as belonging to the Olympieion: not only its Hellenistic marble Corinthian columns but also its archaic limestone Doric columns (Richardson 1992: 222–223). It seems unlikely, though, that Sulla would have chosen the older limestone columns, especially since Pliny's text specifically mentions marble columns.

The coin of Volteius minted circa 78 BCE (Crawford 1974: 399), usually interpreted as showing the temple with Tuscan or Doric capitals, may be dismissed on chronological grounds. This type was created several years after the archaic temple had burned in 83 BCE and well before the dedication of the rebuilt temple in 69 BCE. As a result, scholars have debated whether it reflects memories of the archaic temple or the design of the new one (Fuchs 1969: 17–18, 65–66; Prayon 1982: 320). When minted, the reference would have been obvious. Whether or not Volteius's denarius depicts a specific iteration of the temple, it definitely includes the essential qualities of the Capitoline Temple in any era: its dedication to Jupiter and its triple cella. Remarkably, this first known representation of any Roman temple already incorporates several characteristics that became standard conventions

in subsequent Roman architectural representation: frontal facade (elevation) view and a preference for iconographic clarity rather than exact documentation.

The coins of Petillius, minted circa 43 BCE (Crawford 1974: 497–498), apparently show the temple with Tuscan or Doric columns, and the coins of Vitellius, minted in 69 CE (Sutherland 1984: 269 n. 31 (Tarraco?), 271 n. 56 (Lugdunum), 274 n. 127 (Rome)) show the temple with Corinthian columns. These coins contradict each other, even though we can be certain that they depict the same phase of the temple. In fact, both demonstrate several deviations from our modern standard of precise documentation.

The coins of Petillius are rather impressionistic. Variations from die to die make interpretations based on a single specimen risky, but we can expect that features intended to identify the temple would be the most consistent. Therefore, the evaluation of *architectura numismatica* is best undertaken in conjunction with die study or at least the collection of many examples (e.g., Kleiner 1985). Though a die study of Petillius's coins is beyond the scope of this chapter, the two specimens illustrated here (Figure 24.4 and Figure 24.5) permit some preliminary observations. The rather schematic and highly variable representation of the temple's sculptures, a key iconographic element in many temple images, suggests that the main burden of identification rested on the obverse legend, Petillius's cognomen Capitolinus. Like the sculptures, the column capitals are loosely defined. Those arguing for Corinthian capitals could plausibly claim that these coins do not provide any evidence about the temple's architectural order. Mimesis defines successful art as that which ensures the recognition of the depicted object by a knowledgeable viewer. The column capitals and sculptures on Petillius's coins are difficult to interpret because we are not knowledgeable viewers.

Comparison with other images may clarify enigmatic features like the vertical line of dots bisecting the upper portions of the three central intercolumniations on Petillius's coins. No comparanda support their interpretation as a hanging decoration (Bastien 1978: Figure 13). I suggest instead that these dotted lines might indicate cella doors. A permanent characteristic of the temple, the triple cella appears in most images, represented by three doors or by three cult statues. Compare how on the coin of Volteius (Figure 24.3) and the relief of Marcus Aurelius (Figure 24.1) a central vertical line emphasizes the separation between the two door panels, a horizontal line divides each panel into an upper and lower portion, and round bosses decorate the doors. Consider the difficult task facing Petillius's die engravers if they intended to distinguish between closely spaced foreground columns and doors behind them.

On the other hand, the coins of Vitellius do not depict the temple with a triple cella. Instead, to identify the temple they use variants of the legend

"I O MAX CAPITOLINVS" and the iconography of Jupiter's cult statue, shown large between the columns, seated with his thunderbolt and scepter (Bastien 1978: 184, Figures 1–5; Perry 2012). Only two or four columns are shown, and the pedimental sculpture is highly abbreviated. All of Vitellius's Jupiter Optimus Maximus issues show the temple with Corinthian capitals. Despite the schematic rendering of the temple as a whole, those arguing for Corinthian capitals can take comfort in considering that complex details (like the more elaborate capitals) are more likely to reflect underlying facts than simpler forms.

2. Debating Plans

Questions about the mimetic qualities of images, including their identification, accuracy, and purpose, apply equally to ancient and modern images. We want to understand the original form of the temple in each phase as precisely as our sources permit. This overriding purpose explains our obsession with accuracy. Yet just as the Romans modified and eliminated features for clarity, so do we. All visually appealing plans, elevations, and models demand creativity. Archaeological site documentation, architectural analysis, and public outreach all have traditional forms. Our standard analytic views – plans, elevations, and sections – slice through the x-, y-, and z-axes of buildings, reduce them to miniature scale, remove most of their irregularities, and render them devoid of human activity. We omit features such as sculptural programs out of uncertainty regarding their details. We construct images with features that may never have existed, because it is often necessary to fill in gaps. By abstracting what to us are the essential features of the building, the standard views let us pin a series of scientifically dissected buildings to the page like a collection of butterflies, facilitating comparison and the development of typologies (e.g., the charts comparing plans of archaic temples in Cifani 2008: 291–292, Figures 254–255). The identities of modern images are straightforward: authors provide them; professors ask students to memorize them; and we invest them with reality through sheer familiarity. Through the lens of mimesis we see our own efforts to transform literary and archaeological evidence into graphic design as a style responsive to viewer interests but resistant to ambiguity.

An authoritative plan of the Temple of Jupiter Optimus Maximus would not only contextualize the disjointed wall segments that survive under and around later buildings but also support further analysis of the resources necessary for its construction, of the building's style, of its influence on later structures, and of its effect upon the urban landscape. The latest investigations have confirmed the ancient tradition that the temple was always rebuilt using the same foundations (Dion. Hal. *Ant. Rom.* 4.61.4; Danti 2001). Yet all five

plans proposed subsequent to the recent excavations (see Guide to Further Reading) interpret the surviving walls differently. For example, Mura Sommella has recently set aside the long-held conventional wisdom that the temple had a *peripteros sine postico* plan. She argues for a true peristyle plan, with steps surrounding the building on all four sides in the manner of a Greek temple (Mura Sommella 2009).

One of the major concerns regarding the enormous temple that Blomé and Gjerstad proposed for the archaic period (Gjerstad 1960: 168–189) has been the feasibility of intercolumniations measuring 9 m or more (Ridley 2005: 103–104). Critics of this reconstruction point out how easy it is to create small-scale plans and models without the constraints of ancient materials and building technology. Some have proposed a smaller temple (Stamper 2005: 27–31; see Chapter 11), and others have defended the technical capabilities of late sixth-century-BCE architects (Cifani 2008: 102–106; Hopkins 2012). To help counteract the difficulty of comprehending a building's true scale from measurements or book-sized images, proponents of the small temple hypothesis turn to graphic design. Stamper reproduces Blomé's elevation drawing side by side with a drawing of the Parthenon at the same scale; Jupiter's temple dramatically dwarfs Athena's (Gjerstad 1960: 182, Figure 117; Stamper 2005: 26, Figure 14). Giuliani has compared the width of Blomé's central intercolumniation to the length of a city bus (Mura Sommella 2009: 363, Figure 11). Size comparisons that evoke experiences with familiar objects are more effective than abstract scales.

For more than 50 years, the hexastyle facade of the Temple of Jupiter Optimus Maximus has been the temple's "most identifying characteristic" (Ridley 2005: 98). The five new plans all follow Blomé's well-known plan (Gjerstad 1960: 181, Figure 116) in depicting the temple with a hexastyle facade, regardless of the proposed scale of the restored temple. No one has proposed adding more columns to the temple facade to help carry the load of the roof. What evidence supports the hexastyle orthodoxy? The belief was originally based on numismatic evidence (Ridley 2005: 87, 92), but as discussed above, the number of columns represented in art should not be considered definitive. No single line drawn across any published plan of actual remains corresponds to the cross-section drawing of six parallel foundation walls first published by Danti (2001: 344, Figure 26). It depicts the best-preserved segment of each wall. Hardly any of the pronaos foundations survive (Cifani 2008: 86, Figure 70). Early reconstructions, based primarily on the literary sources, depict as few as four and as many as 11 facade columns (Ridley 2005). Dionysius of Halicarnassus records that the plan in the Augustan period included three rows of columns on the porch (Dion. Hal. *Ant. Rom.* 4.59.1), but he does not mention the number of columns across the facade. Vitruvius does not reveal the number, either. Vitruvius's guidelines regarding proportions, while useful,

are prescriptive rather than descriptive. We need a clearly articulated rationale justifying the number of facade columns (see now Hopkins 2012).

The hexastyle plan persists unquestioned in part because of strategies for remembering and distinguishing temples used by novices in the study of Roman architecture. Column counting is a particularly easy and effective classification strategy for learning decontextualized buildings quickly. We do not need to know why the Temple of Jupiter Optimus Maximus was hexastyle; in our initial forays in the study of Roman architecture, we learned it that way.

Drawing a plan forces the scholar to locate a precise number of columns, doors, and walls. Is a misleading plan better than none? In the quest for graphic clarity, have we conspired in creating for Jupiter Optimus Maximus a case of "the emperor's new clothes?" Innovative computing may offer a solution to this dilemma. In the "Virtual Reconstruction Console" developed for the Mausoleum of Augustus (Pollini *et al.* 2007), the end user selects from a menu of hypotheses to generate a series of alternative views, facilitating appreciation of the extent to which our data is ambiguous. Photo editing techniques permit application of ancient images as "skins" on models of various dimensions, integrating past and present visualizations. Given all the uncertainties surrounding the Capitoline Temple of Jupiter Optimus Maximus, it would be an ideal candidate for the creation of a conditional digital plan and model.

3. Reconstructing Urban Contexts

Many images, both ancient and modern, focus on the building and exclude its urban context. The *Rome Reborn 1.0* layer in Google Earth (Wells *et al.* 2010), on the other hand, makes a three-dimensional virtual reality model of the entire city publicly available. Within this model, it is possible to explore a reconstruction of the Temple of Jupiter Optimus Maximus and evaluate the 360-degree view of the temple and from the temple (Figure 24.6).

Notably, this clearly labeled image of the temple does not depend on any recent plan of the structure. Instead, the model builders efficiently provided a low-resolution generic temple of appropriate size and orientation to serve as a placeholder on the Capitoline until a more detailed representation can be developed (Dylla *et al.* 2010). Therefore, from the point of view of accuracy, this model is deficient in many respects. It depicts a peristyle building with eight plain columns on the facade, 10 columns in the rear, and a single cella door. The porch is correctly three columns deep. The building lacks sculpture. A pop-up box reveals basic metadata, including a static image of the temple in the *Rome Reborn 2.0* model under development. This more detailed hexastyle model with one row of columns on the porch and single cella does not reflect any published plan, either. At present, the metadata do not discuss architectural



Figure 24.6 Temple of Jupiter Optimus Maximus. *Source*: Screenshot from Google Earth *Rome Reborn 1.0*, http://earth.google.com/rome/, accessed September 21, 2010. Image: © 2010 by The Regents of the University of California and Frischer Consulting, Inc. All rights reserved.

form or comment on the decisions made in the process of generating images for this particular building. This example dramatically illustrates the inherent selectivity of our images, which often leave out critical information about a building. They frequently focus on one aspect (such as urban context) to the exclusion of others (like architectural detail).

According to the theory of mimesis, however, we should first consider an image's purpose. *Rome Reborn 1.0* makes limited claims, serving as a proof of concept rather than a finished, authoritative document. It invites collaboration, expects piecemeal updates and upgrades, and links to an ever-expanding library of metadata. The model facilitates the contextual exploration of urban space. It is an effective tool to explore sightlines and viewsheds. Immersive virtual reality equipment allows viewers to explore a life-size version. Even on a small screen, the model succeeds admirably in impressing the viewer with the glory and complexity of ancient Rome. Digital platforms, however, can potentially integrate many different data streams, layers of ambiguity, and extensive metadata at both the macro and micro levels. Successfully doing so may require Herculean efforts and the wealth of Croesus. This complex visualization, if fully realized, will be an incomparable tool for research and public outreach.

4. Visualizing Possibilities

Identification asks, "Which specific building does the image resemble?" This question has a single correct answer, and in many cases we have reached the limits of our understanding. Accuracy asks, "To what extent does the image resemble the building?" This question suggests points along a spectrum from a good likeness to a poor one; it implies a value judgment about the quality of the image. For most ancient images this question is unanswerable, due to insufficient evidence. Worries about reliability emerge as a peculiarly modern concern, driven by a scholarly ethos alien to the Romans themselves. I have argued here that applying modern standards of graphic accuracy as regards proportions, number of facade columns, comprehensive inclusion of known decorative detail, and so on, to ancient architectural images should be considered a fundamentally misguided quest. Mimesis asks, "How does the image resemble the building?" This question demands a narrative answer, and further encourages us to ask, "Why did the artist make that set of choices?" Research related to mimesis, even if not framed by that term, opens the door to innovative analyses of much-debated images.

I have argued that the theory of mimesis facilitates analysis of ancient and modern images of Roman architecture. By emphasizing the importance of the intended audience, it encourages us to remember that ancient and modern audiences are very different (i.e., common and elite viewers of public monuments and coins, versus professional classicists, art historians, and students of the ancient world). By stressing the incomplete resemblance between image and original, the theory of mimesis gives us room to note deviations without becoming fixated on their existence. It may also be useful to think of building images as members of a replica series (most often discussed in terms of Roman "copying" of famous Greek statue types): again, the essentials for recognition are present, but the result is a free adaptation of the original item, not a mechanical duplicate. While all of the images considered here resemble the Temple of Jupiter Optimus Maximus, the ancient point of reference was always the temple itself, not previous images.

A helpful counterbalance to the authoritative single reconstruction is the presentation of many images, including alternative hypotheses. The cost of doing so in print has often been prohibitive. The proliferation of online resources requires viewer discretion to sort through plentiful search results full of misidentified and decontexualized images. In print and online, authors often redraw images without making substantive changes (duplicating work) or choose outdated images in the public domain (perpetuating misunderstandings) in order to avoid copyright issues and file incompatibilities.

The Romans had a different agenda for representing buildings. In durable, public media, facade views of buildings are privileged over plans, and sculptural details are privileged over architectural details. We invert these areas of priority because foundations are often better preserved than superstructures, architectural details are often more easily recovered than sculptural programs, and our audience is largely professional. The modesty with which we omit pedimental, acroterial, and cult sculptures from buildings out of respect for the limits of the data also distorts the final images. Would the Romans have seen such images as representing unfinished, undedicated structures?

We value the latest and most up-to-date understanding of a structure. Yet our visually appealing images, lacking the constraints of construction logistics and the irregularities of hand-shaped materials, may in fact be completely unrealistic. Among other things, our apparently objective images make the viewer deity-like by presenting buildings as comprehensible, miniscule in scale, and seen as from a great height or with x-ray vision. We furthermore have a diachronic view as well as access to information about foundations and various phases of buildings later hidden from sight. But our stylized, squeaky-clean images do not readily translate to the experience of visiting the building. We do not need to exert ourselves to arrive at or explore the structure. We do not encounter access restrictions, ancillary artworks and dedications, smells, or dirt. We imagine buildings at a moment of perfect completion: not partially finished, not under repair or in need of maintenance, without stains or wear patterns. We do not experience their shelter, and we lack the cultural knowledge and reactions of insiders.

For the Romans, the important thing was the experience and message of the building. For the professional classicist or art historian, the most important thing is often to ascertain facts about the building. That said, if our goal is to understand antiquity as thoroughly as possible, modern scholars and artists should make an extra effort to honor those aspects of the buildings that the Romans themselves called attention to in their art.

GUIDE TO FURTHER READING

On the Temple of Jupiter Optimus Maximus:

Bastien (1978) illustrates most surviving ancient representations of the Temple of Jupiter Optimus Maximus. See De Angeli (1996) for the literary evidence and Ridley (2005) for historiography and early plans. Five different plans of the temple based on the recent excavations: Mura Sommella (2000: 25, Figure 26); Stamper (2005: 28, Figure 16); Albertoni and Damiani (2008: 11, Figure 2c); Cifani (2008: 104, Figure 85); and Mura Sommella (2009: 367–368, Figures 17–19). Hopkins (2012),

a convincing defense of the large hexastyle temple hypothesis, and Perry (2012), which complements the approach taken here, came to my attention after I completed this chapter.

On ancient architectural images:
For an extensive literature review of Arkitekturdarstellungen, see my dissertation (Grunow 2002). Although well illustrated and accessible, the identifications in Hill (1989) are often misleading. Maier (1985) and Quante-Schöttler (2002) focus on identification and accuracy. Zanker (1997) and Burnett (1999) move the debate towards the concerns of ancient artists and viewers. I have published two case studies refining my methodology for identifying buildings (Sobocinski 2006; 2009). Also see Dumser (2006), examining tetrarchic images of structures that neither existed nor were intended to be constructed, and Thill (2010), examining thematic trends in the structures depicted on the Column of Trajan.

On theory and practice:
Sörbom (2002) presents an accessible overview, with bibliography, of the ancient concept of mimesis; Sörbom (1966) examines the Greek literary evidence in detail. The art historical literature on visuality and "the gaze" is vast, but Elsner (2007) provides a thought-provoking exploration of the relevant issues for both ancient and modern viewing of ancient art, as well as extensive bibliography. Ware (2004) examines the anatomic and processing capabilities of the human vision system and links this basic scientific data to foundational principles of image design. Haselberger and Humphrey (2006) includes many insightful papers discussing ancient and modern images of ancient Rome; in particular, Favro's stimulating essay, grounded in a wide range of both theoretical and practical literature, has germane observations regarding the role of aesthetics in CVR applications (Favro 2006). Frischer and Dakouri-Hild (2008) showcases new ways archaeologists can use images to facilitate complex cognition.

CHAPTER TWENTY-FIVE

Conservation

William Aylward

Introduction

Who built the Pantheon? For questions like this about the Pantheon and other monuments of ancient Rome, one cannot arrive at a complete answer without consideration of conservation in Roman architecture. The original building, dedicated in 27 or 25 BCE, belonged to Agrippa's building program in the Campus Martius (Platner and Ashby 1929: 382–383; Boatwright 1987: 43; Ziòłkowski 1998: 54–55; Rehak 2006: 21–22). In the *Historia Naturalis* (34.13; 36.38), Pliny names the artist responsible for its decoration, Diogenes of Athens, who allegedly used caryatids and bronze capitals in his design (cf. Broucke 2009: 27–28; Ziòłkowski 2009: 29–40). Richardson proposed that these caryatids were marble, used on the building's porch and crowned by capitals in bronze (1992: 283; cf. Platner and Ashby 1929: 383). Agrippa's Pantheon was destroyed in a fire along with many other buildings in Rome in 80 CE (Cass. Dio 66.24). Domitian restored it, but his building was struck by lightning in 110 CE, and it, too, burned (Anderson 1983: 93, 98–99; Boatwright 1987: 38; Darwall-Smith 1996: 137). How long the ruin had languished before Domitian's restoration is not known. New study of brick stamps preserved in situ in the next Pantheon built on the site suggests that the building so often attributed to Hadrian was actually designed and partly constructed during the principate of Trajan, probably soon after the fire of 110 CE (*SHA Hadr.* 19.9–10; Hetland 2007: 95–112). When Hadrian dedicated the building at some point between 125–128 CE, connections to its

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predecessors played a major role in shaping the monument's identity. Bronze letters across the architrave celebrated Agrippa as builder, perhaps a copy of the original text (Boatwright 1987: 43; Ziòłkowski 1998: 56; Haselberger 2009: 181–182). The caryatids of Agrippa's Pantheon were salvaged from Rome and moved to Tivoli, apparently installed there to adorn the Canopus at Hadrian's Villa (Broucke 1999: 312; 2009: 27–28; cf. Boatwright 1987: 144). Other parts of the building dedicated by Hadrian reveal an intimate connection with its predecessors, especially in terms of its north–south axis, the interior width of the rotunda, and the location of the principal doorway (Ziòłkowski 1998: 54–55). After Hadrian, interventions across the ages of Rome transformed the building into its present state (Platner and Ashby 1929: 382–386; Richardson 1992: 283–286; Ziòłkowski 1998: 56–61; Jokilehto 1999: 38–39; Marder 2009: 145–154; Rice 2009: 155–156). The aesthetic qualities of the Pantheon have never failed to satisfy traditional expectations and inspire contemporary taste (see Chapter 4).

The complexity of the Pantheon's construction history from Agrippa to the present day brings to mind the story of the ship of Theseus. Plutarch reports that the Athenians preserved a ship of their mythical founder-king at least into the lifetime of Demetrius of Phaleron (ca. 350–280 BCE), replacing decayed planks with fresh ones as needed to preserve the ship for posterity (Plut. *Thes.* 23.1). Philosophers used the ship to address the question of growth, identity, and the continuity of form: if all parts of an object are replaced over time, is it still the same object? (cf. Smart 1973: 24–27; Scaltsas 1980: 152–157). The paradox provides a meaningful framework for reflection on conservation in ancient Roman architecture, especially for questions about fidelity to original design. A predilection for practice over theory in ancient sources for Roman building makes a theory of conservation in Roman architecture difficult to identify. Indeed, a theory of architecture itself is not even articulated with conviction in any surviving source. The *De Architectura* of Vitruvius, for example, the only complete text on architecture to survive from Roman times, oscillates between loose philosophical exploration of architecture, largely based on Greek theory, and ardent fixation on materials, planning, design, and practice (Wilson Jones 2000b: 39; cf. Nicolet 1991: 68–69). Alberti's *De re aedificatoria*, to some extent modeled on Vitruvius, includes more theory of architecture and a tenth book on the restoration of buildings, but even this was a practical guide to shoring up decay in the spirit of Vitruvius's preoccupation with the negative force of time on buildings (Trachtenberg 2005: 127–128). A bona fide theory of conservation of architecture did not begin to be articulated in Europe before the eighteenth century (Glendinning 2003: 360–363). Approaches reminiscent of ancient Roman architecture's practical achievement were among the first to emerge. These met the disdain of John Ruskin's anti-restoration argument, which stressed history over aesthetic for attempts to restore monuments

in the Victorian era (Ruskin 1880: 186, 194; cf. Jokilehto 1999: 174–185; Eggert 2009: 35). Less anxious about authenticity, Ruskin's French contemporary, Eugène Viollet-le-Duc (1814–1879), proposed that "To restore a building is not to preserve it, to repair, or rebuild it; it is to reinstate it in a condition of completeness that could never have existed at any given time" (Viollet-le-Duc 1990a: 274; 1990b: 195; cf. Jokilehto 1999: 137–167; Glendinning 2003: 363–364). It is hard to deny such a description to Hadrian's (or Trajan's) Pantheon, or to other signature monuments of imperial Rome's architectural achievement that were also founded on designs of predecessors. For example, by the time Pliny proclaimed the Basilica Aemilia among the most beautiful of all Rome's buildings, it had already undergone three major restorations (*HN* 36.102; cf. Richardson 1992: 55; Steinby 1994: 167–168). Viollet's ideas about conservation were born out of the French Gothic revival, but they capture the essence of ancient Roman civilization's penchant for connecting past, present, and future and, in turn, using building conservation to create new aesthetic qualities in Roman architecture.

The gulf between nineteenth-century theory and ancient Roman practice becomes somewhat easier to navigate if we consider enduring historical motivations for conservation. Humanity has always been concerned with control over the physical appearance of the immediate physical environment. Conservation of monuments provides a gratifying avenue for obtaining this control (Algreen-Ussing *et al.* 2000: 7; Karmon 2011: 23–24). The physical environment provides meaning and context for everyday life, and choices about conservation are guided by interest to nurture correspondence between physical surroundings and identity. At Rome, notions of identity were continually challenged by, among other forces, political culture, economic change, multiculturalism, and the rise and fall of Empire.

There is no single description of conservation in ancient Roman architecture that is commensurate with our own notions about what architectural conservation should be, and we must beware of creating and then trying to explain anachronism. Literary sources and architectural ruins reveal a broad range of approaches to conserving architecture. Monuments were demolished, restored to their original appearance (or what was believed to have been their original appearance), rehabilitated with a combination of old and new, or entirely updated and embellished on a selective and case-by-case basis, without reflection on standard practices for building conservation.

The absence of a comprehensive or convenient definition of building conservation in ancient Roman architecture should not diminish the role that conservation played in ancient Roman architecture's symbolic value as a mark of sophistication, superior technology, and civilization (Vitr. *De Arch.* 1.praef.2; Zanker 1988: 76, 153–156, 335–339; Nicolet 1991: 74; Favro 2005: 248–262; van Eck 2007: 36–37). Varied responses to building conservation

gave architecture powerful connectivity with the past, present, and future. Appeals to family history or religious piety in the conservation of monuments were often combined with desire for immediate gratification and building a legacy for posterity to appreciate. Like other monuments, the Pantheon illustrates how conservation programs combined retrospective and prospective outlooks and how Roman builders used their past to make their world modern (Karmon 2011: 23–24).

1. The Aesthetics of Roman Architectural Conservation

Conservation of architecture has historically involved varying degrees of one or another general approach to a building's aesthetic qualities and artistic value. In general, interests lie in strict preservation of a building's original design, down to the very material of its individual parts, or in using the conservation process to embellish a building with new aesthetic qualities (Korres 1997: 202–203; King 2000: 21). Examples of both approaches can be found in ancient Roman architecture, with the latter far more prevalent than the former.

Competition for the right to restore buildings had substantial impact on attitudes about conservation of architecture in ancient Rome. Maintenance of private property was subject to fairly consistent regulation, especially in close proximity to streets and public spaces (Robinson 1992: 59–69). But care of public buildings evolved along somewhat different lines. In the period of the Roman Republic, descendants of original builders were obliged to restore and maintain public buildings attached to the family name. Under Augustus, opportunities for public building were stripped from families outside the ruling house, and building restoration became a responsibility and privilege controlled by the imperial family (Eck 1984: 140–141; see Chapter 3).

Opportunities for remaking buildings anew allowed for participation in the Roman political culture of conspicuous consumption, which prevailed at Rome from the age of Caesar to the dynasty of the Severans (Lancaster 2005a: 83). Interest in the care of public buildings was intertwined with a fascination for collecting Greek art, which was motivated less by desire to preserve the cultural patrimony of Greece and more by opportunities to make political statements about power and elite culture. For example, when Augustus finished the restoration of the Temple of Apollo Medicus that had been initiated by Sosius in 34 BCE, he adorned it with Greek statues taken from the Temple of Apollo in Eretria. The artistic program of the refurbished temple amounted to a timeless celebration of conquest over Greece in Rome's public spaces (Walker 2000: 64).

Competition for building restoration at Rome blurred the lines between conserving the aesthetic qualities of a building's original design and using the conservation process to embellish a monument with new aesthetic qualities. For example, combined programs of salvage and embellishment appear to have been chronic in the architectural history of the Basilica Aemilia. According to Cicero, the magnificent refurbishment of the basilica by L. Aemilius Paullus in the 50s BCE involved salvage and reuse of 125-year-old columns from the original building (Cic. *Att.* 4.16.8). For his description of the restoration of the Basilica Aemilia by Lepidus in 22 CE, Tacitus used the verbs strengthen and embellish (*firmaret ornaretque*; *Ann.* 3.72.1). Thus, like the Pantheon, the legacies of Rome's most prized buildings were not distinguished by acute distinctions between restoration and embellishment.

Fidelity to the original appears to have been especially important when it came to maintenance of monuments connected to Rome's foundation legends. These were of special interest to the ruling elite because they offered political and symbolic opportunities to link contemporary people and programs to the enduring legacy of Rome's illustrious founders like Romulus and Aeneas. At Rome, the Casa Romuli appears to have been especially revered as a monument deserving of its original appearance (Coarelli 1995: 241–242). Most informative is the account of Dionysius of Halicarnassus, who lived in Rome after 30 BCE:

> One of these, called the hut of Romulus, remained even to my day on the flank of the Palatine hill which faces towards the Circus, and it is preserved holy by those who have charge of these matters; they add nothing to it to render it more stately, but if any part of it is injured, either by storms or by the lapse of time, they repair the damage and restore the hut as nearly as possible to its former condition. (*Ant. Rom.* 1.79.11)

In his own lifetime, Vitruvius witnessed a hut of Romulus on the Capitoline Hill restored with a thatch roof and "a significant reminder of the fashions of old times" (*De Arch.* 2.1.5). Before its restoration after a fire of 14 BCE, the Temple of Vesta in the Forum Romanum, which according to legend had been founded by Romulus or Numa, may have also been maintained to appear as an ancestral hut. Ovid's description of the hut's rustic appearance is consistent with representations of the monument with a hut-like roof on coins of Quintus Cassius Longinus, consul in 55 BCE (Figure 25.1; Ov. *Fast.* 6.261–266; Richardson 1992: 412–413; Rocco 2003: Figure 225). The legendary hut of Faustulus, the shepherd who discovered Romulus and Remus in the wild, may have also been maintained in rustic appearance in the Temple of Jupiter Capitolinus in Augustan times (Frazer, ed. 1929: 6.185–186).



Figure 25.1 Temple of Vesta. Denarius of Q. Cassius Longinus, consul in 55 BCE. *Source*: Yale University Art Gallery. Transfer from Sterling Memorial Library, Yale University.

Maintenance of heritage monuments even extended beyond Rome to places like Lavinium, where the Heroon of Aeneas was maintained throughout most of the Roman Republic (Holloway 1994: 135–138). Restorations in emulation of ancient materials and techniques were susceptible to fairly rapid decay, which meant that they provided more frequent opportunities for politically motivated restoration. The Casa Romuli, for example, burned at least twice in the lifetime of Augustus, in 38 and 12 BCE (Dio Cass. 48.43.4, 54.29.8). Augustus's rehabilitation of interest in monuments connected to the foundations of Rome was central to his transformation of Rome into an imperial city (Walker 2000: 61–75; cf. Barchiesi 2005: 281–305; Kleiner 2005: 218–225; see Chapter 3).

But fidelity to an original design to the degree these examples reveal seems to have had more to do with reverence for ancestors linked to city foundations than with bona fide interest in conservation of architecture. Caution to distinguish these motives is especially due for the Augustan era, when Aeneas and Romulus had powerful symbolic value for the political agenda of the principate (Zanker 1988: 201–210). The Casa Romuli was distinguished not only for its archaic architectural appearance, but also for its highly charged connection to Romulus. This combination of unique attributes was not shared by any other building at Rome. Thus, it would be misleading to use a singular monument like the Casa Romuli as the basis for imagining that conservation of architecture had systematic presence in state policy at Rome, especially in the Augustan era (cf. Karmon 2011: 23–33). The Casa Romuli was most certainly not on the mind of Augustus when he observed with satisfaction, we are told, that he had found Rome a city of brick and left it a city of marble (Suet. *Aug.* 28; Dio Cass. 56.30.3). The underlying sentiment of this telling reminiscence reveals a Roman attitude about conservation as a transformative process that

combined reverence for antiquity with opportunities to influence contemporary policy and win the admiration of posterity.

Descriptions of other conservation projects at Rome do not include the same focus on fidelity to the original found in the description of the Casa Romuli by Dionysius of Halicarnassus. In the *Res Gestae Divi Augusti*, Augustus's account of his care for Rome's monuments distinguishes restoration of old buildings at Rome from the Forum of Caesar and the Basilica Julia with the verb *perfeci* ("complete"). The latter were impressive not only for their size, ornament, and materials, especially Carrara marble, but also as physical manifestations of Augustus's unrivaled connection to his adoptive father Caesar, who had begun but not completed these projects before his assassination in 44 BCE (see Chapter 3). Augustus used the verb *refeci* ("restore") to describe his attention to all other monuments named in the same section of the *Res Gestae*: the Capitolium, the Theater of Pompey, 82 unnamed temples, the channels of aqueducts, and the Via Flaminia with most of its bridges. But the formulaic language of the document need not be taken as proof of a consistent or systematic approach to building conservation (cf. Thomas and Witschel 1992: 135–177). Indeed, despite the political nature of the document, the *Res Gestae* implies that restoration only played out where needed and that measures taken were not in excess of what was required at the time. Restoration of aqueducts was a practical necessity to sustain and enhance the quality of life in the city. All bridges on the Via Flaminia were restored except for the Mulvian and the Munician, presumably because they were not in need of repair at the time. The 82 unnamed temples qualified as those deemed to be in need of conservation at the time of Augustus's sixth consulship in 28 BCE (*Mon. Anc.* 20.4). This seems to imply that, over 40 years later, upon the publication of the *Res Gestae* in 14 CE, some of the restored temples (and others left untouched in 28 BCE) might have again been in need of repair.

The 82 unnamed temples merit further discussion. The impressive number is commensurate with the sweeping political change that distinguished Augustus's achievement, and few would deny that he used the chance to restore these temples for his own political advantage. The cults remained the same, but the aesthetic qualities of their architecture were updated with contemporary materials and techniques, and transformed to meet Augustus's imperial vision for Rome, with temples closest to the ambition of Augustus given the most attention (Zanker 1988: 108–110; cf. Pliny *HN* 36.11–14; Livy 4.20.6–7). Rather than conservation for the sake of historic preservation, this process was rooted in political interest to update existing monuments with aesthetic qualities to suit contemporary taste. Among these aesthetic qualities were trends for archaizing and classicizing iconography and motifs. For some of the 82 unnamed temples, this meant maintenance and repair with little conspicuous improvement, but in other cases it involved new materials

and techniques, such as skill with Carrara marble, which was a mark of Rome's expanding Empire and rising technological sophistication (see Chapter 11).

Likewise, approaches to building conservation in the Roman provinces also involved a broad range of responses (see Chapter 20). For example, Roman-period restorers of the Erechtheion on the Athenian acropolis did not reuse all classical-period materials available to them after the building's partial destruction by fire in the first century BCE, prompting characterization of their work as an attempt "to restore it as a monument of high artistic worth" (Korres 1997: 199). When presented with the opportunity to recreate a revered monument from classical Athens, the restorers did not limit themselves to a strict recreation of the original aesthetic. Reverence for antiquity prevailed as the motive for conservation, but the restoration work treated the building as a whole rather than block by block, and details of the Roman-period work were distinguished from surviving parts of the original (Korres 1997: 203–204; Jokilehto 1999: 2–3). The restored monument took on new aesthetic qualities caught between the original Greek design and Roman-era materials and techniques.

Elsewhere, concern for fidelity to the original appears to have been intended in other Roman efforts to complete monuments left unfinished by Greek builders, but actual results varied. A number of temples in the Roman province of Asia Minor provide good examples. Despite telltale signs of Roman intervention, especially in the form of building inscriptions, architectural details produced by Roman-period masons emulate, although not always convincingly, the original designs of Greek builders at the Temple of Athena Polias at Priene, the Temple of Apollo at Claros, and the Temple of Artemis at Sardis. Conscious reference to past architectural forms, especially ornament, from Classical to Hellenistic and on into Roman times is perceptible in many buildings across western Asia Minor and Greece (Rumscheid 1994: 347–348; Korres 1997: 198). An example in Roman Greece produced a similar effect by different means. Having been dismantled at its original location, where it had been built four and a half centuries earlier, a Temple to Athena was relocated piece by piece to the Agora of Athens in Augustan times. For the temple's *sima*, the restorers used blocks taken from the Temple of Poseidon at Sounion, contemporary with the original Temple of Athena in date, but not identical in style or appearance (Camp 2001: 189–192). Roman conservation created a brand new temple, unlike any single predecessor, from recycled components compiled from different sources. The aesthetic qualities of the restored building inherited components of classical designs, but not in the way intended by the original builders. The restored temple was dedicated to the new Ares, Gaius Caesar, an adopted son of Augustus. Thus, in the provinces, as at Rome, conservation was also bonded to the promotion of heritage by the special ability of architecture to connect past, present, and future. Questions of fidelity to an original were met with a variety of responses, and Roman builders captured the past to remake it for their own times.

It comes as no surprise that naming conventions for restored buildings also blurred the lines between past, present, and future. In imperial Rome, political advantage was gained by suppressing the name of the restorer (Eck 1984: 140–142). The case of the Pantheon has been presented above (Boatwright 1987: 43, 73). Other notable examples include the Theater of Pompey, for which Augustus decided to retain the name of the original patron (Tac. *Ann.* 3.72.4), and monuments restored by Vespasian after the civil war of 69 CE (Dio Cass. 65.10.1). Augustus himself drew attention to the suppression of his own name in the restoration of the Theater of Pompey and the Capitolium (*Mon. Anc.* 20.1). The literate populace familiar with the *Res Gestae* would have obviously been reminded of the Augustan intervention, but, at best, spectators at the monuments themselves were presented with a selective building history. Suppressing the name of the restorer in the conservation of these monuments obscured their architectural history and recast them in a timeless state of renewal connected to both past and present.

It remains to consider Vitruvius, author of the *De Architectura*. Few doubt that Vitruvius had scholarly interest in architecture, nor that he understood theory of architecture and design articulated by his Hellenistic predecessors. Because he wrote in the early part of the Augustan era, he witnessed most if not all of the restoration work mentioned in the *Res Gestae*. In the *De Architectura*, his general interest in discourse on architecture is rooted in a Platonic model that privileged the abstract over the real (Senseney 2007: 560–564; see Chapter 8). From Vitruvius we understand Roman interest in appropriateness for buildings, especially in terms of function and tradition (*De Arch.* 1.2.1; cf. Scranton 1974: 499; see also Chapter 22). Despite appreciation for principles of design and questions of aesthetics and originality, unifying principles for the conservation of buildings do not emerge from his treatise, which betrays a clear predilection for communicating best practices for building materials and techniques to his contemporaries.

For Vitruvius, conservation did not fall into a special category of building, but was instead grouped together with guidelines for new construction (Robinson 1992: 49–50). His principal focus was on ensuring the longevity of new constructions, not the care and protection of aging monuments. Vitruvius comes closest to addressing matters of conservation in his predilection for lamenting about the impact of decay on buildings. For example, bricks are best used after they have dried for two years. If used too early, they shrink and destroy plaster coating adhered to walls made from them (*De Arch.* 2.3.2). The dryness of fir encourages its decay (2.9.6). When used for piles under buildings in swampy terrain, alder remains "imperishable forever" (2.9.10). Vitruvius praises cedar, used for the cult statue of Diana in her temple at Ephesus, as well as for coffered ceilings there and in other temples, because it is "everlasting" (2.9.13; cf. Ulrich 2007). And "tiles, roof timbers and rafters

can be easily replaced, however defective they may become" (6.8.8). Nor were materials salvaged from old buildings called out by Vitruvius as worthy for their historical value or aesthetic qualities as much as they were for their durability: the "strongest burnt brick walls are those which are constructed out of old roofing tiles" (2.8.19).

For Vitruvius, the lifespan of buildings was prolonged by the selection of good material (2.10.3). Volcanic sand called pozzolana mixed with lime and rubble makes a building material that can withstand waves and the force of water (2.6.1). The volcanic tuff known as *peperino*, quarried near Tarquinia, lasts to a great age and "cannot be injured by the weather or by the force of fire" (2.7.7). Indeed, pozzolana and *peperino* are the ingredients responsible for the survival of three of Rome's signature monuments today, the former in the mortared rubble for the rotunda and dome of the Pantheon, and the latter in the monumental backdrop to the Temple of Mars Ultor in the Forum of Augustus and the Tabularium in the Forum Romanum (see also Chapter 9).

For Vitruvius, longevity could only be achieved if good materials were used in appropriate combination or arrangement and according to proper technique. For example, in order to prevent rainwater from spoiling walls made of brick, Vitruvius recommended several courses of projecting fired brickwork to crown the tops of walls to carry the eaves (2.8.18). Vitruvius is critical of walls composed of rubble fill masked by neat facing: "no such walls can escape ruin as time goes on" (2.8.8). Moreover, special measures for ample drainage from the roofs of displuviate atria were required to prevent surplus runoff from spoiling the woodwork and walls (6.3.2). According to Vitruvius, heat and moisture will spoil timber used for the roof of a hot room of a bath without a plaster vault suspended below (5.11.3). Libraries were to have eastern exposure, so that books stored there would not decay from dampness, mold, or worms (6.4.1). Stucco, only when made and applied correctly, will last to a great age (7.3.8).

Thus, throughout his *Ten Books* on architecture, Vitruvius maintained his focus on materials and techniques. Conservation of architecture is not mentioned among the many detailed requirements for the proper training of an architect, and it is not something Vitruvius celebrated among the many achievements of architects who had come before him. Like the *Res Gestae* of Augustus, the *De Architectura* of Vitruvius reveals that Roman conservation involved an outlook on the past, present, and future. Vitruvius encouraged builders to construct monuments to last for future generations, but in accordance with décor and propriety inherited from the past. Vitruvius was not concerned to distinguish renovation from new construction. Likewise, famous architects of the imperial dynasties, such as Severus and Celer (Nero), Rabirius (Domitian), and Apollodorus of Damascus (Trajan and Hadrian), were

celebrated by ancient writers for their progressive inventions, not for efforts at historic preservation (MacDonald 1982a: 125–137; Anderson 1997: 58, 65–66; see Chapter 4). For Vitruvius and imperial Roman architects, building was an agent to glorify Rome and celebrate the ingenuity of the designer and the spectacle of materials and technology. Rabirius stands out as restorer of many buildings prized by Rome at the close of the first century CE, such as the Temple of Jupiter Capitolinus and the Temple of Venus Genetrix in the Forum of Caesar, but his interventions were hardly efforts at conservation. His brand new buildings were not meant to restore or recreate former designs, but to update them and make them grander than before.

2. Time, Fidelity, and Identity

In terms of construction history, the Pantheon has much in common with the Temple of Jupiter Capitolinus, which was three times rebuilt on the foundations of the original, each time with a hexastyle facade (Dion. Hal. *Ant. Rom.* 4.61.4; Richardson 1992: 222–223; De Angeli 1996: 151; Tagliamonte 1996: 149; see Chapters 11 and 24). Embellishment of the original temple occurred throughout the period of the Republic without subjecting the structure to fundamental alteration of form. Improvements about which we know before the temple was lost to fire in 83 BCE include gilded shields on the facade, new stucco on its columns and walls, a new coffered ceiling, and a new mosaic pavement in the cella (Tagliamonte 1996: 146). After rebuilding on the same foundations and to the same plan, the temple bore the name of its restorer, Q. Lutatius Catulus, until destruction by fire in 69 CE (Tac. *Hist.* 3.72.3). Lavish restorations by Augustus refrained from changes to the dedicatory inscription bearing the name of Catulus (*Mon. Anc.* 20.1). The third restoration by Vespasian burned in the fire of 80 CE, the same fire that destroyed Agrippa's Pantheon, and, as with the Pantheon, Domitian intervened as restorer. The case of the Temple of Jupiter Capitolinus highlights how building conservation reconciled competing forces of tradition and innovation. For example, Vespasian's building retained the hexastyle facade of its predecessors but changed the architectural order from Tuscan to Corinthian (Vitr. *De Arch.* 3.3.5; Richardson 1992: 223; De Angeli 1996: 151). Domitian's building exceeded all predecessors in magnificence, adding gold-plated doors, gilded bronze tiles, and columns of Pentelic marble, but it also adhered to the plan dictated by the foundations of the original building.

The long and complex construction histories of the Pantheon and the Temple of Jupiter Capitolinus reveal them to be vivid examples of ancient Roman approaches to conservation that did not demand fidelity to the original. By combining traditional and modern design and suppressing the names

of restorers, complex representations of time in these monuments were deeply connected to forces of dynasty, Empire, and Roman identity in the built environment of Rome. Civic basilicas, freestanding arches, steam baths, *nymphaea*, and amphitheaters throughout the provinces attest to an undeniable intimacy between architecture and Roman identity (see Chapter 20). Frequent representations of these monuments on Roman coins, often with exquisite detail, betray architecture's emblematic value for Roman culture (see Chapter 24). Sources for how Romans sought to control the very building materials and techniques needed to employ architecture as a medium of power add further dimension to this connection (Lancaster 2005a: 172–181). The notion of architecture as a guarantor of Rome and her Empire was powerful political motivation for conservation, and, except in a few cases of monuments to Rome's legendary foundations, it overshadowed interest in straightforward fidelity to the design or achievement of an individual or by-gone era. Architecture of the Roman Empire does not bear witness to a notion of conservation with a conscience beyond the self, as approaches to conservation do today (Philippot 1996: 216–229, esp. 217, 225).

In the twenty-first century, as in ancient Rome, political culture and aesthetics also guide approaches to conservation of architecture. Thus, consideration of a recent exercise in conservation provides a vivid framework for contemplating ancient Roman approaches to conservation: David Chipperfield's recent intervention in the decaying ruin of the Neues Museum, located on Museum Island in Berlin, near the site of the Berlin Stadtschloss. Original construction began in 1841 according to the design of Friedrich August Stüler (Frampton 2009: 97–106; Rykwert 2009: 25–35). After the Revolution of 1848 delayed work, the museum opened in 1855, but the stereochromatic frescoes of the interior were not complete until 1866. Structural modification of the building ensued (1883–1887), and in the early 1920s the frescoes were covered over with neutral interiors to suit contemporary taste. The museum was closed in 1939 and gutted by Allied bombs in November 1943 and February 1945, with the heaviest damage inflicted on the northwest and southwest wings, the southeast facade, and the central stairway (Figure 25.2). The GDR made efforts to stabilize the ruin in the late 1980s, but a complete plan to rehabilitate the museum only materialized after the reunification of Germany. Chipperfield's rehabilitation of the monument, begun in 1997 and completed with the reopening of the Museum in 2009, is striking for the way it has captured the architectural history of the monument and recast it for a contemporary audience. The museum now includes abstract forms in cast concrete with an austere absence of detail interlaced with original materials and techniques in stone, brick, stucco, and plaster rescued from the museum's blackened shell (Frampton 2009: 100–106; Rykwert 2009: 32–35).



Figure 25.2 Neues Museum, Berlin. Staircase Hall, presumably a short time after the bombing of November 23/24, 1943. *Source*: © bpk, Bildarchiv Preußischer Kulturbesitz.

Comparison with the Pantheon is instructive. Each project faced interconnected challenges of complex architectural histories, questions of fidelity to predecessors, and debate about meaning. Moreover, the century and a half each monument endured between design, trauma, survival, and rehabilitation – from Agrippa to Hadrian for the Pantheon and from Stüler to Chipperfield for the Neues Museum – provides a parallel temporal module for gauging how processes of conservation ensconce architecture in the identity of a city and its people.

Like the Pantheon, the Neues Museum had three principal stages of architectural completion: the original monument completed in 1866, its neutral refurbishment in the 1920s, and the new rehabilitation completed in 2009. At no time in the life of the monument was restoration faithful to a predecessor adopted as a meaningful solution for conservation, although, like the Pantheon, footprints of forebears were embraced for their historical value. Like the Pantheon, each renewal was witness to the monument's history, including stages of ruin, neglect, and decay (cf. Schubert 2009: 75).

For the Pantheon, the sheer complexity of engineering a concrete dome of unprecedented size implies the existence of some kind of overall design



Figure 25.3 Neues Museum, Berlin. Staircase Hall, 2009. *Source*: © Stiftung Preußischer Kulturbesitz/David Chipperfield Architects. Photo: Jörg von Bruchhausen.

scheme. At the same time, the physical remains of the building suggest ad hoc solutions to challenges of design and appearance that arose as work progressed (Harrap 2009: 125; Wolters and Chipperfield 2009: 234). One example is the so-called "portico fiasco," which allegedly involved reducing the height of the porch by 10 feet because taller column shafts originally planned for the building were not available at the time of construction (Davies, Hemsoll, and Wilson Jones 1987: 133–153; Haselberger 2009: 181–184; Wilson Jones 2009a: 85–87). Whereas not all agree with this conclusion, the scenario is true to the idea that challenges of materials, labor, and aesthetics made changes mid-project rather routine for Roman builders (see Chapter 10).

Such ad hoc solutions were often not without consequence for questions of meaning and identity. For example, Hadrian's Pantheon and Chipperfield's Neues Museum each omitted caryatids that had been signature elements of preceding designs. For Stüler, who had been involved in plans for a Greek royal palace on the Athenian Acropolis, caryatids were appropriate for a building in the urban program of King Frederick William IV, who had studied architecture with Stüler's mentor, the architect and city planner Karl Friedrich Schinkel (Rykwert 2009: 25). The absence of Stüler's caryatids from atop the grand stairway in Chipperfield's Neues Museum marks a substantial break with the past (Figure 25.3). At Rome, while Agrippa's name had found a place in Hadrian's Pantheon, the caryatids in his original design for the building had not, even though they retained an aesthetic and meaning worthy of display

around the Canopus at Hadrian's Villa, completed during the final stages of Pantheon construction (ca. 125–128 CE) (Boatwright 1987: 149; Broucke 1999: 312; 2009: 27–28; see Chapter 4). Whereas some in Hadrianic Rome may have persisted to connect caryatids with Athenian classicism, others would have known them as a symbol of Augustan power by their enduring presence in the Forum of Augustus. The absence of such potent symbols of Roman power and conquest from the new Pantheon highlights a disinterest in fidelity to the original in Roman architecture of the Empire.

The fate of Agrippa's caryatids as ghosts of a lost predecessor is mirrored by countless ancient Roman examples of architectural parts salvaged from one building for reuse in another, like the *sima* for the temple moved to the Athenian Agora or practices described by Vitruvius. It is also mirrored by the legacy of the Stadtschloss Berlin, the Baroque-style palace of Prussian Kings and German Emperors for over two centuries (1701–1918) with important historical and topographical connection to the Neues Museum. Like the Neues Museum, the Stadtschloss was damaged by bombs in 1943 and 1945 and fell to the GDR in the division of Berlin. When the GDR demolished it in a symbolic erasure of royalty in 1950, they salvaged the balcony from which Karl Liebknecht had declared the German Socialist Republic in November 1918 and installed it on the facade of the Staatsratsgebäude (Council of State building, now the European School of Management and Technology), built in 1964 over part of the site.

Like the selective processes that motivated Augustus's conservation of 82 temples at Rome, conservation of the Neues Museum involved choices about what to remember and what to forget. The GDR interventions of the late 1980s were stripped from the building, even though some aspect of every other era of the building's history remains preserved in the restored museum (Harrap 2009: 126). Audience reaction to the transformation of the building was focused on the place of memory in the process of renewal (Rykwert 2009: 35; Schubert 2009: 81; Wolters and Chipperfield 2009: 238–239). Sanctions on memory like those involving the erasure of the GDR interventions from the Neues Museum have their origins in Greco-Roman antiquity and eastern Mediterranean civilizations before them (Varner 2004: 2–12; Flower 2006: 43–44). For the Pantheon, Agrippa's legacy was guaranteed permanence by the positioning of his name on the frieze on the building's porch. The version of the monument as restored after the fire of 80 CE by Domitian, himself the subject of memory sanctions following his assassination at Rome, did not secure the same fate (Suet. *Dom.* 17 and 23). Indeed, it would be entirely unknown were it not for the survival of two fourth-century-CE chronicles (Anderson 1983: 98–99). We do not know what Domitian's building looked like, or if builders of the next Pantheon considered any aspect of its design or appearance worthy of preservation in their monument (Stuart 1905: 449).

If the historian Tacitus is any guide in his appraisal of imperial building programs, public debate about memory and honesty in conservation was as robust as today:

> During Nero's second consulship with Lucius Piso for his colleague, little occurred deserving mention, unless one were to take pleasure in filling volumes with the praise of the foundations and timber work on which the Emperor piled the immense amphitheater in the Field of Mars. But custom prescribes that it suits the dignity of the Roman people to reserve history for great achievements, and to leave such details to the city's daily register. (Tac. *Ann.* 13.31)

The absence of Domitian and the GDR in the remaking of the Pantheon and the Neues Museum illustrate the enduring impact that architectural conservation has on influencing memory and shaping history.

Conservation theory since the eighteenth century has emphasized conserving the aesthetic qualities of a building's original design (King 2000: 21). But for Roman imperial architecture, apart from a few monuments for which reverence for the past was politically expedient, namely those connected to foundation legend, restorers of monuments imposed no such limitations on their own practices and designs. Attitudes about conservation in Roman architecture developed in the Augustan era suggest that fidelity to an original design was the exception, not the rule. Building restoration offered opportunities to update and embellish buildings with new aesthetic qualities. Building programs of visionaries like Caesar and Augustus and celebrated architects like Severus, Celer, Rabirius, and Apollodorus of Damascus were about urban renewal, not conservation and protection of the past (cf. Anderson 1997: 52–67). A culture of conspicuous consumption fueled a drive for new construction over historic preservation. In the absence of conservation theory, building restoration was an ad hoc process by which the urban character of Rome became recast for each generation. Roman conservation, as best as it can be identified, played out in a practical environment in which a distinction between building and conservation was less important than the function of architecture as a marker of Roman identity. At stake was the identity of a community whose fortunes were embedded in the buildings that framed their livelihood and purpose. Acclaimed as a profound symbol of identity for the city of Berlin, the newly rehabilitated Neues Museum provides one example of how present-day challenges, mindsets, and approaches are prefigured by Roman approaches to conservation (Chipperfield 2009: 10–1; Frampton 2009: 97; Schubert 2009: 73–83; Siva 2009: 9). Of course, Roman conservation was free from theoretical constructs that steered the conservation of the Neues Museum. Unbound by such constructs of theory and free from anxiety about authenticity,

Roman conservation was part of everyday building, driven by the meaning of architecture as a symbol of sophistication, technology, civilization, power, and the endurance of Rome. In practice, this involved recycling parts, repairing decay, or restoring and refurbishing in ways that could involve entirely new designs free to look both backward and forward at the same time, like the example of the Neues Museum for Berlin and the Pantheon for Rome.

3. Conclusion

Conservation is not a topic one readily finds in books on Roman architecture. Roman conservation was selective, unguided by theory, motivated by power and opportunity, and a process by which Roman buildings took on new aesthetic qualities. Despite its selective nature, conservation played a measurable role in defining the peculiar aesthetic we identify as the achievement of Roman architecture.

Ancient Roman builders applied special treatment to architectural relics, like the hut of Romulus, where authenticity of material and individual parts was paramount. For most other buildings, appeals to the concept of historical memory involved freer use of new architectural parts, while artistic value surpassed historical value as the principal motive for conservation (Korres 1997: 197, 203). This was especially true for the Pantheon and the Temple of Jupiter Capitolinus, buildings with intimate connections to architectural footprints of predecessors.

It's also true that no two buildings at Rome were alike in appearance or construction history. Attempts at a single definition for the varied processes of building conservation described above only belittle the dynamism of Roman architecture. Indeed, the ancient Romans themselves applied diverse terminology to describe interventions in architecture. Examples from Augustus (*reficere*) and Tacitus (*firmare, ornare*) described above betray the absence of systematic terminology for building conservation at Rome. The disinterest in a theory of conservation perceptible in the building manual of Vitruvius helps to explain this phenomenon.

Manolis Korres (1997: 202–203) has used "restauro creative" to capture the character of ancient architectural interventions, which, just as described for the Pantheon and Temple of Jupiter Capitolinus above, could sometimes involve substantial changes to a building. New aesthetic qualities taken on by such buildings were guided by forces of tradition and innovation, which were neither exclusively complementary nor opposite. Restored buildings were marks of continuity with the past while at the same time fully in tune with the Zeitgeist of their own generation. The construction history of ancient Roman

buildings, defined in many ways by processes of their conservation, is as important as the buildings as finished products for understanding how architecture came to be the powerfully expressive medium it was in the achievement of ancient Rome.

GUIDE TO FURTHER READING

The reader will find occasional articles on ancient Roman buildings in the *International Journal of Architectural Heritage*. Also useful are essays in Algreen-Ussing *et al.* (eds.) (2000). Karmon's recent overview of antiquity and preservation in Renaissance Rome (2011: 23–33) probably relies too heavily on the *Casa Romuli* to pin the origins of a systematic policy for conservation on municipal reforms of the Augustan age.

Glossary

***Abacus*:** the uppermost horizontal element on a column capital, upon which the architrave (s.v.) is seated.

Acanthus: see Corinthian order.

Acroterium (or ***acroterion***)**:** a decorative element at the apex of a pediment (s.v.) or at the outer corners of a pediment.

Adytum (or ***adyton***)**:** an inner sacred chamber in a temple or sanctuary.

***Aedes*:** the Latin term for "building," used most specifically to refer to a temple.

***Aedicula*:** a term used to refer to a small decorative structure with columns and a triangular or lunate pediment (s.v.) placed along the interior wall of a larger building. The painted version is also a popular motif for mural decoration.

***Agger*:** a ridge or pile of earth; the term refers to early defensive networks, often used in conjunction with a *fossa* (s.v.).

Aisle: a corridor in a building such as a basilica (s.v.) that is usually defined by rows of columns or piers.

***Ala*, (pl.) *alae*:** "wings"; side passages or rooms on either side of the *tablinum* (s.v.) in a Roman atrium (s.v.). Also describe short walls/passageways flanking either side of the back of a temple's cella (s.v.).

A Companion to Roman Architecture, First Edition. Edited by Roger B. Ulrich and Caroline K. Quenemoen.

Altar: a table-like structure placed in front of a temple to accommodate burnt offerings. Funerary altars were also set up around private tombs.

***Ambulatio*:** a walkway, covered or uncovered, for promenades, often in the form of a terrace connected to a villa. The term *ambulacrum* has many of the same meanings.

Ambulatory: a general term to indicate any passageway for movement by walking.

Amphitheater: an elliptical stadium with seating around a central *arena* (s.v.) for the staging of gladiatorial games, animal hunts, and similar spectacles.

Anathyrosis: a Greek term to describe the removal of surface stone at the center of two adjacent blocks to facilitate joining them closely by a smooth contact band at the edges. The recessed surface can be described as "rebated."

Annular vault: an extended vault built in the form of an arc or circle.

Annulet: See necking ring.

***Anta*, (pl.) *antae*:** pilasters built into the ends of the lateral walls of a temple's cella (s.v.).

Antefix: the decorative terminus, usually of terracotta, placed along the drip line of a roof and serving as the lowermost cover tile.

Anthemion: see palmette.

***Apodyterium*:** a room for changing clothes in a Roman bath.

Apophyge: the concave flare at the bottom or the top of a column shaft that marks the transition between the shaft and the base or the shaft and the capital.

Apse (Figure 11.5, b): A curvilinear niche usually in the form of a semicircle and covered by a half-dome. Apses were used to house cult statues in temples and were the focus of audience halls and early Christian basilicas (s.v.).

***Ara*:** see altar.

***Araeostyle*:** the widest of intercolumnar spacing (over three column diameters; cf. Vitruvius 3.3.5). See also: *diastyle, eustyle, pycnostyle, systyle.*

Arcade (Figure 17.3): a continuous series of arches carried by columns of piers. If engaged to a solid wall the form is known as a "blind" arcade.

Archaic period: a term that refers both to the art and architecture of Greece produced during the sixth and fifth centuries BCE and to the later Iron Age periods of Italy, from the ninth through the sixth centuries BCE.

Architrave: a horizontal beam of wood or stone supported by columns or pilasters; the lowest element of a classical entablature, often decorated with *fasciae* (s.v.).

Archivolt: The outer face of a barrel vault, often decorated with bands (*fasciae*, s.v. *fascia*).

***Arcosolium*:** an arched opening in the wall of a tomb that contains an interment. See also *loculus.*

Arcuated lintel: the presence of a vaulted entablature that springs directly from column capitals. See also Syrian arch.

***Arena*:** the interior floor of an amphitheater (s.v.).

Arris: a sharp ridge. See Doric order.

***Arx*:** the Latin term for a citadel and a term used to describe the north summit of the Capitoline Hill.

Ashlar (Figure 9.2): a squared block of stone, often laid in level (isodomic) courses.

Ashlar masonry (Figure 9.2): the use of ashlars in horizontal courses, laid either lengthwise (as stretchers) or with the short end exposed (as headers). See also *opus quadratum.*

Astragal: a convex, often half-round molding. It is commonly carved to form a decorative "bead-and-reel." Also the top molding of a Corinthian (s.v.) column shaft, immediately below the capital.

***Atriolum*:** a vestibule or anteroom.

***Atrium* (Figure 18.1):** the central space of a traditional Italic *domus* (s.v.). It is usually reached through a narrow passageway, or *fauces.* The "Tuscan" atrium includes no interior columns; the "tetrastyle" atrium has four columns, one placed at each corner of the *impluvium.* The *impluvium* of a "Corinthian" atrium is surrounded by rows of columns. See also *compluvium*, *impluvium*, *ala*, *tablinum*, *cubiculum.*

Attic (Figure 5.1): a span of wall crowned by its own molding that is placed above an entablature. Common in triumphal arches, gateways, and the uppermost tier of an amphitheater.

***Aula* (Figure 6.4):** a large hall in a villa or palace for reception and/or entertainment.

***Balneum*, (pl.) *balnea*:** a common bath establishment of modest size. For the great imperial bath buildings see *thermae.*

Barrel vault (Figure 9.8): a continuous vault that is semicircular in section.

Base: the lowest element of a column; those from the Ionic (s.v.) and Corinthian (s.v.) (and some Tuscan (s.v.)) orders are the most elaborate with two convex (sing. *torus*) and one concave (sing. *scotia*) elements.

Basilica (Figure 5.5): a rectangular roofed hall found on the edge of forum spaces. Aisles created by columns or piers define two or four sides of the interior. The open space in the center (the nave) is usually illuminated by clerestory lighting (s.v.). Civic structures were later adapted for use as Christian churches. See also, apse, tribunal.

***Basis villae*:** massive rural terrace walls found in central Italy, which have been associated with republican-period villas.

Baths: see *balneum*, *thermae*.

Bead-and-reel: a form of molding common on cornices consisting of an alternating series of lozenges and paired disks (or spheres). See also astragal.

***Bessalis*:** a fired clay tile two-thirds of a Roman foot square (19.7 cm).

***Biclinium*:** a dining room with two couches, also a dining couch that accommodates two persons (i.e., smaller than the more common *triclinium* (s.v.)).

***Bipedalis*:** a fired clay tile two Roman feet square (60 cm). Used for flooring, leveling courses, or cut down to form smaller bricks.

Bonding course: a course of single stone blocks (usually "headers" (s.v.)) or large tiles that traverse the entire width of a masonry wall.

Boss: a stone projection left on a quarried block to assist lifting the block with a rope. More generally, any small, often decorative and circular in shape, projection.

Bracket: see corbel.

Brick: see *bipedalis*, *tegula*, *opus latericium*, *opus testaceum*.

Brick stamp: an imprint made into a clay tile before it is fired, usually including lettering that can be interpreted to establish date of manufacture.

***Bucranium*, (pl.) *bucrania*:** representation of a bull's skull; a series may be linked with floral garlands. The motif was popular on the architraves of temples.

***Caementum* (or pl. form, *caementa*):** small stones, reused rubble, or broken tile used as the aggregate for concrete. See *opus caementicium*.

***Caldarium*:** the hottest room of a Roman bath.



Figure G1 Roman column capitals. From left: A Tuscan capital from the Forum Holitorium, Rome; an Ionic capital from the precinct of the Temple of Apollo, Pompeii; a Corinthian capital from the Forum Baths of Ostia; a composite capital from Temple B in the civic forum of Sufetula/Sbeitla (Tunisia). *Source*: Roger B. Ulrich.

Cantilever: a projecting structure, usually a wooden beam, that is supported on one end and carries a load on the projecting side.

Capital (Figure G1): the highest element of a column or pilaster. In Roman architecture the main orders are: Tuscan (s.v.), Doric (s.v.), Ionic (s.v.), Corinthian (s.v.), and Composite (s.v.).

***Carceres*:** see *circus.*

***Cardo*:** a primary north–south street of a Roman town. See also *decumanus.*

Caryatid: a vertical support carved in human form, usually of a woman, and used in lieu of a column. Examples in Rome include copies of the well-known "Caryatids" that decorate the Erechtheum in Athens.

***Caseggiato* (Ital.):** see *insula.*

***Castra* (pl. of *castrum*):** the term for a Roman camp; often used in its plural form in reference to a single building (e.g., *Castra Praetoria*).

***Cauliculus*:** the stalk (one of eight) from which extend the leaves (with volutes) and helices (s.v. helix) of a Corinthian (s.v.) capital.

***Cavea*:** the sloped seating area of a Roman theater, *odeon* (s.v.) or amphitheater (s.v.). The seats were often subdivided into wedge-shaped sections, *cunei.*

Cavetto: a molding with a concave profile, in section it approximates a quarter-circle.

Cella: a room. The term is most often used to describe the square or rectangular cult chamber of a temple; it can also refer to a room in a tomb.

***Cenaculum*:** a multi-roomed apartment in a large multi-family structure, especially in an *insula* (s.v.). See also *medianum*.

Centering: the temporary wooden framework erected to support an arch or vault as it is being constructed. The framework is removed upon completion of the vault.

***Chalcidicum*:** a term that refers to a monumental porch or vestibule to a public building, such as that found at the entrance to the civic basilica in Pompeii, or the Senate House (Curia) of Rome.

Circus: a racetrack for chariots. Also known by the Greek term "hippodrome." The course was divided down the center by a low wall (*euripus* (s.v.) or *spina*), with a turning post, *meta*, at the far end. The starting gates are referred to as *carceres*.

Clamp: a fastener of metal or wood of various shapes (e.g., dovetail or "*pi*" in form) that binds two adjacent ashlars (s.v.).

Classical period: a stylistic term referring specifically to art and architecture produced in Greece, especially Athens, from the early fifth century to the late fourth century BCE. See also archaic and Hellenistic.

Clerestory: a method of high-level lighting achieved by building a tiered roof so that windows can be inserted into walls that are higher than adjacent bays or aisles.

Coffer (Lat. *lacunar*): a recess, often square or rectangular, that decorates wooden or masonry ceilings.

***Columbarium*:** literally, a "dovecote." The term is used to refer to a tomb with multiple niches that house cremation urns.

***Columen* (Figure 1.1):** the ridgepole of a pitched roof.

Column: a cylindrical support, often with base and capital, with or without vertical channels (flutes).

***Compluvium* (Figure 18.1):** a rectangular opening in the roof of a Roman house that admits light and water; the latter falls into a corresponding shallow basin in the floor called the *impluvium* (s.v.).

Composite capital (Figure G1): a column capital that combines elements of the Ionic (s.v.) and the Corinthian (s.v.).

Consoles: the horizontal brackets of a Corinthian (s.v.) cornice.

***Contignatio* (Figure 9.1):** a flooring system of joists, subfloor, and sheathing, the last of tile or concrete.

Corbel: a cantilevered wooden, stone, or tile element used to support a superimposed floor or ceiling. A series of corbels can cover a modest span. The terms also can refer to a projecting stone bracket, console, or *mensola* on a wall or architectural molding. The term "false arch" can refer to corbelling.

Corinthian order (Figure G1): a Greek architectural order characterized like the Ionic order (s.v.) by a continuous frieze typically decorated, an architrave with three *fasciae* (s.v. *fascia*), and a column shaft (fluted, with fillets) and base; the capitals of the columns are most commonly decorated with representations of acanthus leaves.

Cornice: the uppermost projecting element of an entablature (s.v.), usually comprising a set of moldings including dentils (s.v.), cymatiums (s.v.), modillions (s.v.), and corona (s.v.). See also geison.

Corona: the band of a cornice (s.v.) immediately below the *sima* (s.v.).

Cross vault (Figure 16.3): a vault formed by the intersection (usually perpendicular) of two barrel vaults.

Cryptoporticus: literally, a "hidden porticus," often a subterranean or semi-subterranean barrel-vaulted ambulatory illuminated by high-level windows.

***Cubiculum*:** a room, often small and windowless, that serves as a bedroom in a Roman *domus* (s.v.). *Cubicula* often open off of the atrium (s.v.) of a Roman house.

***Cuneus*:** see *cavea*.

Curia: a building, usually rectangular in plan and with one main room, in which the Roman Senate or its provincial equivalent met.

***Cyma recta*:** a molding that in profile is concave above and convex below.

***Cyma reversa*:** a molding that in profile is convex above and concave below.

Cymatium: a molding having the S-shaped curve of either a *cyma recta* (s.v.) or a *cyma reversa* (s.v.).

Dado: the lowest zone of a wall, often framed by moldings.

Decastyle (Figure 5.3): usually used in reference to a plan of a temple that has 10 columns along its short side(s), one of which serves as the facade.

***Decumanus maximus*:** the main street running east–west in a Roman town. See also *cardo*.

Dentils: a decorative cornice molding consisting of a row of rectangular or square "teeth"; common in the Ionic (s.v.) and Corinthian (s.v.) orders.

Diastyle**:** a spacing of columns so that an intercolumniation (s.v.) measures three base diameters. Vitruvius cautions that such broad spacing may result in the breaking of architraves (*De Arch.* 3.3.4).

Dipteral: the use of a double row of columns around the cella (s.v.) of a temple.

Distyle: a colonnaded facade consisting of two free-standing columns. If placed between two *antae* (s.v.), the arrangement is known as distyle *in antis*.

Dodecastyle: having 12 columns across the facade.

Dome (Figure 5.3): a vault that is circular in plan and usually hemispherical in section.

Domus **(Figure 18.1):** a single-family (urban) house.

Doric order: a Greek order characterized by a triglyph (s.v.) and metope (s.v.) frieze (s.v.), unadorned architrave (s.v.), and fluted columns with sharp ridges (arrises; s.v. arris); the shafts lack distinct base moldings.

Drafting: the addition of a recessed band around the perimeter of an ashlar (s.v.) block.

Dromos**:** an entrance corridor, used especially to describe that leading to the interior of an Etruscan rock-cut tomb.

Drum: a cylindrical segment of a column shaft.

Echinus**:** the convex molding of a Doric (s.v.) capital that forms the transition between the column shaft and the *abacus* (s.v.).

Egg-and-dart: a molding common to the Ionic (s.v.) and Corinthian (s.v.) orders, convex in profile and carved to resemble a series of “eggs” and “shells,” each separated by a vertical element that resembles a pointed dart.

Emblema **(pl. *emblemata*):** a fine mosaic inset with small *tesserae* (s.v. *tessera*) that can be made in a workshop and inserted into a larger mosaic floor.

En ressaut**:** the placement of a free-standing column close to a wall as a decorative element.

Engaged column or pilaster: a column or pilaster that is attached to a corresponding wall surface along its entire height, including its base and capital.

Entablature: a tripartite arrangement of (from bottom to top) architrave (s.v.), frieze (s.v.), and cornice (s.v.), most commonly supported by a colonnade.

Entasis: the slight “swelling” visible in the profile of some column shafts.

***Euripus*:** a canal; also used to indicate the central divider in a Roman *circus* (s.v.).

***Eustyle*:** an intercolumniation of 2.25 column diameters; those on axis with the entrance, 3 diameters apart (Vitr. *De Arch.* 3.3.6).

***Exedra* (Figure 18.2, nos. 22–24*)*:** a room-sized semicircular or rectangular recess built into a wall, often a perimeter wall, of a building.

Extrados: see intrados.

False arch: see corbel.

***Fascia*:** a horizontal band on an architrave block (Ionic (s.v.) or Corinthian (s.v.)) or archivolt (s.v.).

***Fastigium*:** a term that is often interpreted to refer to a triangular pediment (s.v.), and may also refer in general to the presence of a timber-trussed (s.v.) roof.

***Fauces*:** see atrium.

***Favissa*:** a pit placed in a sanctuary to hold votive offerings.

Fillet: a plain, ribbon-like band, square or rectangular in section, that acts as a simple border; the flat top surface of the fluting of an Ionic (s.v.) or Corinthian (s.v.) column shaft.

Flat arch: a horizontal lintel constructed of multiple voussoirs (s.v.) that stay in place through the force of compression.

***Fleuron*:** The central and highest floral element of a Corinthian (s.v.) capital.

***Forma*:** a trench cut into the floor of a tomb to contain a burial.

Formwork: see shuttering.

***Fornix*:** a Latin term for an arch; especially a free-standing triumphal or commemorative arch.

***Fossa*:** a trench; a term used for inhumation burials during the Iron Age and also a defensive trench dug as part of a fortification circuit. See also *agger*.

Free-span: the unencumbered distance covered by a vault or timber frame.

Fresco: a wall painting technique by which colored pigments are applied directly upon a surface of wet plaster.

Frieze: the middle band of a tripartite entablature (s.v.). It may be left unadorned or decorated, depending on the Classical order, including the triglyph (s.v.) and metope (s.v.) frieze of the Doric order (s.v.). A frieze may also refer to any continuous band of sculpture in high relief.

***Frigidarium*:** the "cold" room of a Roman bath (*balneum* (s.v.) or *thermae* (s.v.)). In the large public imperial bath buildings, the *frigidarium* was usually an immense, cross-vaulted hall. See also *apodyterium*, *caldarium*, *palaestra*, *tepidarium*.

***Fundamenta* (Figure 9.6):** the Latin term for a building's "foundations." The term *substructio* is also used to refer to a "substructure," hence "foundation."

Geison: a term that is the equivalent of the more general "cornice" of a Classical entablature; the uppermost projecting element of the entablature.

Guilloche: a decorative molding on the torus (s.v.) of a column base or at the base of a wall characterized by a complex braided motif of two or more curved bands.

Header: see ashlar masonry.

Helix, (pl.) helices: the central floral spiral elements of a Corinthian capital (s.v.).

Hellenistic period: a term referring to the final major period of autonomous Greek artistic production, traditionally dated from the death of Alexander the Great (323 BCE) to 31 BCE (Battle of Actium). "Hellenized" more generally refers to Greek influence.

Hemicyle: a large, semicircular enclosure, often built into the enclosure wall of a public space such as a forum or bath building.

Hexastyle: a colonnaded facade consisting of six free-standing columns (used to refer to the facade of a temple).

***Horreum* (Figure 17.4):** a building used for storage; a warehouse. Often written in its plural form, e.g., *Horrea Epagathiana*, even when used to indicate a single structure.

***Hortus* (Figure 18.1):** a garden. In the Roman house, an open air space often surrounded by columns or pilasters. The term *viridarium* is also used to describe such formal gardens. See also *xystus*.

Hypocaust (Figure 9.7): a raised floor in a Roman bath building or in a house that accommodates the passage of hot flue gases from a *praefurnium* (s.v.) for heating. See also *pila*, *suspensura*.

***Hypogeum*:** an underground or basement chamber, usually in reference to a burial chamber.

***Ianua*:** the outer doors, generally double-leaved, of a Roman *domus* (s.v.) that open on to the *fauces* (s.v.).

***Imbrex*:** see *tegula*.

***Impluvium*:** a shallow basin in the floor of a room, commonly the atrium (s.v.) of a Roman house, to catch rainwater from an opening in the roof overhead, the *compluvium*.

***Insula*:** term used to indicate an apartment house, often comprising an entire city block. In modern scholarship the term can refer to any city block. The Italian term "*caseggiato*" is often used to refer to a multi-family apartment house.

Intarsia: a decorative inlay pattern or wood, stone or decorative brickwork. See also *opus sectile*.

Interaxial: the space between the centers of two adjacent columns.

Intercolumniation: the space between two adjacent columns.

Intrados: the lower curve and inside face of an arch or barrel vault. The upper, outer surface is referred to as the extrados.

Ionic order (Figure G1): a Greek architectural order characterized like the Corinthian order (s.v.) by a continuous frieze typically decorated, an architrave with three *fasciae*, and a column shaft (fluted, with fillets) and base. The capital (s.v.) of the column is characterized by scrolled volutes (s.v.).

Jamb: the lateral framing elements (posts; s.v. post) of a door.

Keystone: see voussoir.

***Laconicum*:** a hot, sauna-like room in a Roman bath. The *laconicum*, similar if not identical to a *sudatorium*, was a "dry" bathing room used for sweating.

***Lacunar*:** see coffer.

***Lararium*:** a small shrine in a house or apartment building that houses protecting deities, including the *Lares*, from which the shrine gets its name.

Lintel: a horizontal structural member, usually of wood or stone, that spans an opening in a wall such as a door or window.

Lintel arch: see flat arch.

***Loculus*:** a narrow niche or slot, sealed, in the wall of a tomb (characteristic of burials in catacombs).

Lunette: a segmental architectural frame based on a circle, usually to frame the top of a window or door, thus the curvilinear counterpart to a pedimental form.

***Maenianum*:** a balcony in the upper floor of a portico or atrium (s.v.), or one projection from the facade of a building.

Marble: a metamorphosed limestone (calcium carbonate) highly prized by Roman builders. The prolific Carrara quarries in northwestern Italy produced most of the white marble ("Luna" or "Luni" stone) used in buildings of the imperial period. Common imported colored marbles are usually referred to by their modern Italian names as follows:

***Africano (marmor luculleum)*:** from near Teos in Asian Minor (Turkey). Color: a type of breccia with patterns of red, gray, and black.

***Cipollino (marmor carystium)*:** from Euboea, Greece. Color: green veins on white.

***Giallo Antico (marmor numidicum)*:** from Chemtou, Numidia (modern Tunisia). Color: yellow.

Granite, gray: from ***Mons Claudianus***, Egypt.

Granite, red or pink: from Aswan, Egypt.

***Pavonazzetto (marmor phrygium)*:** from Docimium in Asia Minor (Turkey). Color: purple veining on white.

Pentelic: from Mount Pentelikon, Attica, Greece. Color: white.

Porphyry: from ***Mons Porpyritis***, Egypt. Color: deep purple-red.

***Portasanta (marmor chium)*:** from Iassos, Greece. Color: veins of red, violet, black, and white.

***Rosso Antico (marmor taenarium)*:** from Cape Matapa in the Peloponnese, Greece. Color: red.

***Serpentino verde (lapis lacedaemonius)*:** from Cape Matapa, Peloponnese, Greece. A variety is also known from Egypt. Color: green.

***Medianum*:** a central shared space in an apartment (*cenaculum*, s.v.) such as a hall or corridor from which access is granted to most if not all of the other rooms in the apartment.

***Mensola*:** see corbel.

***Meta*:** see *circus*. Also the name of a monumental fountain on the eastern approach to the Roman Forum.

***Metope*:** in Greek and Roman Doric order (s.v.), the panel at the frieze (s.v.) level inserted between a pair of triglyphs (s.v.).

Modillion: a horizontal bracket most commonly found on the underside of the geison (s.v.) of a Corinthian (s.v.) cornice.

***Naos*:** a Greek term to describe the cella (s.v.) of a temple.

***Natatio*:** a swimming pool, often incorporated into a public bath building.

Necking ring (Figure G1): a raised "collar" at the top of a column shaft, used especially on columns of the Tuscan order (s.v.). Equivalent to annulet.

Nymphaeum (Figure 5.6): specifically a natural or artificial grotto dedicated to water nymphs, but generally a reference to a monumental fountain.

Octastyle (Figure 11.5, b and c): a colonnaded facade consisting of eight free-standing columns (generally used to refer to the facade of a temple).

***Oculus*:** a circular opening at the apex of a dome.

***Odeon* (or *Odeum*):** a roofed music hall. May also be referred to as a *theatrum tectum*.

***Oecus*:** a Greek term used in a Roman context to describe a formal reception or dining room in a house (*domus*). Cf. Vitr. *De Arch.* 6.3.8, with reference to such rooms built in the Corinthian (s.v.), tetrastyle (s.v.), and Egyptian manner.

***Olla*:** a globular-shaped terracotta (more rarely stone) jar built into the wall of a tomb to hold the ashes of a cremation burial.

***Opus africanum* (also *opera a telaio*):** a wall constructed of vertical stone piers with an infill of faced, mortared rubble.

***Opus albarium*:** the finish coat of plaster, often painted.

***Opus caementicium*:** walls made of concrete comprising slaked lime, sand, and aggregate, usually faced with stone or brick.

***Opus craticium* (Figure 9.1):** The term *cratis* refers to "wattlework," where mud is smeared over panels of interwoven twigs. *Opus craticium* refers to walls of half-timber construction, usually with an infill of mortar and rubble.

***Opus figlinum*:** the use of custom shaped tiles for columns (s.v.), capitals (s.v.), or cornices (s.v.).

***Opus incertum* (or *antiquum*) (Figure 9.4):** uncut stone facing used on a concrete wall.

***Opus intestinum*:** interior woodwork.

***Opus latericium* (Figure. 9.4):** walls of brick (according to some, mudbrick or adobe; however the term has become interchangeable with *opus testaceum* (s.v.)).

***Opus mixtum* (Figure 9.4):** a combination of brick facing, often in horizontal bands, and *opus reticulatum* (s.v.).

***Opus musivum* (or *tessellatum* or *vermiculatum)*:** mosaic floor (or wall).

***Opus quadratum* (Figure 9.2):** walls of cut stone, rectangular in form.

***Opus quasi-reticulatum* (Figure 9.4):** roughly-dressed stone facing in a pattern loosely based on the net-like pattern of reticulate work, used on a concrete wall.

***Opus reticulatum* (Figure 9.4):** squared facing stones used on a concrete wall with net-like ("reticulate") pattern.

***Opus sectile marmoreum*:** a floor or wall covered with pieces of cut marble.

***Opus signinum* (or *cocciopesto*):** a flooring made of cement and crushed tile, also used to line cisterns as a waterproof coating.

***Opus siliceum* (Figure 9.2):** walls of polygonal stone, often of large size.

***Opus spicatum*:** a flooring rendered as a herring-bone pattern of small fired bricks.

Opus tectorium: the rough coat of plaster used to cover masonry walls.

***Opus tessellatum*:** a mosaic of regular squared cut stones or *tesserae* (s.v. *tessera*) laid in rows.

***Opus testaceum* (or *doliare*):** fired brick facing used on a concrete wall. See also *opus latericium.*

***Opus vermiculatum*:** a mosaic of squared cut stones applied in curved lines that follow contours, similar to the brushstrokes of a painting.

***Opus vittatum mixtum* (or *listatum*):** a facing of alternating rows of brickwork and small blocks of tuff.

Orthostate: an upright stone slab, often used in a series along the lowest masonry course of a wall. Commonly represented in painted form along the lowest zone of a plastered wall.

Ovolo: a molding, usually carved (s.v. egg-and-dart).

***Palaestra*:** an open courtyard used for exercise, often found integrated with bathing establishments. *Palaestrae* are often surrounded by porticoes (s.v. *porticus*).

Palmette: a decorative floral motif, carved, molded or painted, with fan-like leaves often arranged in a series, where it is often referred to as an anthemion.

***Parados*:** the side entrance to the orchestra of a theater.

Pediment (Lat. *fastigium*): the triangular end of a pitched roof, framed by the horizontal cornice (s.v.) on the bottom and a raking *sima* (s.v.) on each side.

Pendentive: a triangular section of a sphere, concave, used at the upper corners of a square or polygonal space to make the transition to a dome.

***Pergula*:** a projecting structure in front of a building, such as an urban house (*domus*, s.v.) or *insula* (s.v.), employed for a commercial activity; a kind of stall or booth.

Peripteral: a continuous ring of free-standing external columns. A pseudo-peripteral building has free-standing columns along the facade and engaged columns (s.v.) along the sides and back.

***Peripteros sine postico* (Figure 11.4):** a temple plan that includes free-standing columns on the front and sides of the shrine, but none at the back.

Peristasis: the name for the colonnades of a peripteral (s.v.) building.

Peristyle (Figure 18.2): a colonnade that surrounds a structure or encloses an inner courtyard.

Pier: a vertical load-bearing architectural support.

***Pila* (Figure 9.7):** a small vertical support, often of brick, used to support the floor of a hypocaust (s.v.).

Pilaster: a vertical support with identical decorative features of a column (including base and capital) except that it is square or rectangular in section. Most ancient examples are engaged to a wall surface.

***Piscina*:** a fish-pond, often built within the gardens of town-houses and villas as a formal garden pool. Also used to denote a plunge pool in a bath building, or simply a tank used in a water system.

Pisé: a form of construction (usually a wall) built of rammed, packed earth, and/or clay.

Plinth: a square base for a column.

Pluteus: a low half-wall, often running between columns to create a waist-high barrier.

Podium: a masonry platform, most commonly used to describe the raised base of an Italic temple, and usually decorated with crowning and base moldings.

Polygonal masonry: see *opus siliceum.*

***Pomerium*:** the sacred boundary of a town, laid out by ritual.

***Porticus*:** a passageway framed by a row of columns, pilasters, or piers and commonly used to denote a courtyard bordered by such a feature. See also *quadriporticus.*

Post: general term for any vertical support. Usually used in pairs to support a lintel (s.v.). Thus "post-and-lintel" architecture.

***Pozzolana*:** modern term for *pulvis puteolanus*, a volcanic ash found in central Italy (especially around the area of Puteoli) used for a hydraulic cement.

***Praefurnium*:** the furnace of a bath building.

***Principia*:** the headquarters built within a Roman camp (*castra* (s.v.)).

***Pronaos* (Lat. *pronaus*):** the covered "porch" in front of the cella (s.v.) of a temple.

Prop-and-lintel: a method of using vertical timbers to support the ridgepole and rafters of a timbered roof (as opposed to the timber-truss (s.v.)).

***Propylaeum* (often used in the plural form, *propylaea;* Figure 5.2):** a monumental gate to a temple, forum, portico, or palace precinct. "Propylon" can refer to a smaller version.

***Proscaenium*:** the stage of a Roman theater, in front of the *scaena* (s.v.).

Prostyle: a (temple) plan with a facade colonnade, but lacking free-standing or engaged columns on the sides or back of the structure.

Pseudoperipteral: see peripteral.

***Pulpitum*:** The stage of a Roman theater where the actors stand.

Putlog holes: cavities in a masonry wall used to attach scaffolding during construction and repair.

Pycnostyle: a close (1.5 column diameters) spacing of columns.

***Quadrifrons* (Figure 5.4):** a structure (usually an arch) with four facades, such as might be located at a crossroads. See also tetrapylon.

***Quadriga*:** a chariot pulled by four horses.

***Quadriporticus* (Figure 17.3):** a square or rectangular courtyard with a *porticus* (s.v.) on all sides.

Quoin: masonry placed to form a sharp exterior right-angled corner of a wall. Thus brick or squared stone quoins may be used for a wall otherwise made of rubble masonry.

Relieving arch (Figure 9.3): an arch built into a wall above a point of weakness like a doorway or window.

Revetment: a decorative sheathing, usually of thin slabs of terracotta or marble, used to cover exposed wood or a masonry wall.

Ribbing (Figure 9.8): ribs fashioned from brick or interlocking terracotta tubes used to aid in the construction and reinforcement of Roman vaults.

Ridgepole (Lat. *columen*): the main supporting wooden beam of a pitched roof, used both in the prop-and-lintel and the timber-trussed roof. A rooftree.

***Rinceau* (pl. *rinceaux*):** a French term used to describe a decorative wave or spiral, often of acanthus leaves, commonly used as a decorative frieze (s.v.) on the entablatures (s.v.) of temples.

***Rostra* (plural form of *rostrum*):** a raised speakers' platform in a civic forum, either free standing or attached to a building like a temple.

Rotunda: a structure with a circular footprint, often built with a dome. See also tholos.

Rustication: the method of leaving an exposed face of a stone block with a rough, "unfinished" look.

***Scaena*:** the building that forms the backdrop of a Roman stage, the decorated facade of which is known as a "*scaenae frons.*"

***Scotia*:** see base.

***Selce*:** a hard volcanic leucititic lava, usually black, used as a paving stone.

***Sesquipedalis*:** a fired clay tile one and one-half Roman feet squared (44.4 cm).

Shuttering: the use of planking to form a temporary formwork for foundations of concrete or walls of *pisé* (s.v.).

***Sima*:** the crowning molding of a cornice; a raking *sima* frames the left and right sloping sides of a pediment (s.v.).

Sleeper beam (Figure 9.6, c): a horizontal timber placed in a trench that anchors a stud wall.

Socle: the top course of masonry or the top face of concrete upon which a wall stands.

Soffit: the underside of an element, such as an architrave (s.v.), that is visible. The term is sometimes used to refer to the underside (intrados, s.v.) of a barrel vault.

***Solarium*:** a "sun room." A flat terrace that forms in part the roof of a building, thus a "roof-terrace."

Spandrel: the roughly triangular area of wall surface on either side of a barrel vault.

***Specus*:** the waterproof channel of an aqueduct.

***Spina*:** see *circus*.

Springer: see voussoir.

Squinch: infill, usually of stone or brick, often corbelled (s.v. corbel), placed on or near the top corners of a square room in order to aid the transition to a dome.

Stadium (Figure 15.1): a place for athletic contests adapted from Greek prototypes, usually in a form similar to that of a *circus* (s.v.), but conceived on a smaller scale and lacking a *spina* (s.v.) and starting gates.

Stretcher: see ashlar masonry.

Stucco: fine-grained plaster of lime used as a finish coat over stones or brick and often rendered in relief for decoration.

Stylobate: the highest course of masonry of a temple's platform, upon which the columns are seated.

***Substructio*:** see *fundamenta*.

***Sudatorium*:** see *laconicum*.

***Suspensura* (Figure 9.6):** a "hanging" floor designed with an airspace below for the circulation of air, usually for a bath building. See also hypocaust, *pila*.

Syrian arch (Figure 6.2 and Figure 6.3): often used to describe a traditional pediment that is combined with an arcuated lintel (s.v.) in the form of an arch.

***Systyle*:** the spacing of columns so that the intercolumniation measures two base diameters.

***Taberna*:** a Roman shop, often with a single room and a mezzanine level for living and storage space.

***Tablinum* (Figure 18.1):** the traditional reception hall (and once the "master bedroom"), usually on axis with the main doorway, of a Roman *domus* (s.v.).

***Tectorius*:** a craftsman specialized in the application of stucco (s.v.).

***Tegula*:** a flat or "pan" roof tile of terracotta. The seams are covered with a curved or triangular *imbrex*. Sheathing with "tiles" could also be done using bronze or marble.

***Tegula mammata*:** a special-use tile with small raised bosses (or "nipples") employed to create an airspace between a structural wall and the inside face of that wall (most usually to aid in heating spaces).

***Templum*:** a space marked out by priests (augurs) as sacred, usually rectangular in layout and hosting an altar. See also *aedes*.

***Tepidarium*:** the warm room of a Roman bath.

***Tessera*:** a small cube of cut stone used to create a floor or wall mosaic.

***Testudo*:** a pitched roof; perhaps one with a timber-truss (s.v.). The term "testudinate" refers generally to a pitched roof with a ridgepole.

Tetrapylon: a free-standing structure supported by four piers, often used to describe a monument erected at the intersection of two streets. See also *quadrifrons*.

Tetrastyle (Figure 11.2): having four columns. A colonnaded facade consisting of four free-standing columns (e.g., the facade of a temple). A square or rectangular space with one column at each corner (e.g., within an atrium (s.v.) or *oecus* (s.v.)).

***Thermae*:** baths. The term refers to the great public imperial bathing establishments. See also *balneum*.

***Thermopolium*:** a type of *taberna* (s.v.) where (warm) food is sold.

Tholos: Greek term to describe a circular building and often used to describe a Roman cylindrical, free-standing temple with an external colonnade.

Timber-truss (also tie-beam truss): a triangular configuration of two rafters and a horizontal tie beam to create a pitched roof capable of broad free-spans.

***Torus*:** see base.

Trabeated: a modifier used to indicate the presence of post-and-lintel architecture (s.v.). From the Latin *trabs*, or "beam."

Travertine (*lapis Tiburtinus*): a grayish-white calcareous porous stone used extensively during the Late Republic (from the second century BCE) and imperial periods. The main quarries lie near Tivoli.

***Tribunal*:** a raised platform used by a magistrate presiding over a legal proceeding or for a general to address his troops, either as a free-standing structure or built into a larger structure, such as a basilica (s.v.).

***Triclinium*:** the dining room in a Roman house, villa, or palace, so named for the three dining couches (*klinai*) traditionally placed around the side and back walls of the room.

Triconch (or ***triconchos*):** a square or rectangular space with *exedrae* (s.v.) opening off of three of the walls. The trefoil plan appears to have been popular for monumental *triclinia* (s.v.).

Triglyph: an element of the Greek and Roman Doric (s.v.) order, rectangular and carved with three vertical bands, placed in a Doric frieze (s.v.) alternating with metopes (s.v.).

Tripteral: having columns three rows deep.

***Tubuli* (Figure 9.8, e):** hollow rectangular or cylindrical terracotta tubes used to channel hot gases through walls or to frame vaults.

Tuff: a volcanic stone commonly described in English as "tufa," used extensively in Latium, Etruria, and Campania. The stone is derived from hardened volcanic ash and mud. Varieties identified by color and quarry-source around Rome and her neighbors include:

> ***Anio (tufo dell'Aniene; tufo lionato)*:** a reddish tuff quarried along the banks of the Anio River (Cave di Tor Cervara) and used extensively from the Late Republic onwards.
>
> ***Cappellaccio* (Figure 9.2):** a soft and friable tuff in the area of central Rome (Palatine and Capitoline Hills), used extensively in the archaic period (seventh–fifth centuries BCE).
>
> ***Fidene*:** a gray tuff with large black inclusions or scoria. Quarried near Fidenae, which was captured by Rome near the end of the fifth century BCE, and used in Rome until the late second century BCE.
>
> ***Grotta Oscura*:** a yellow tuff of moderate density quarried near Veii (a zone controlled by Rome after 396 BCE). Its use tapers off at the end of the second century BCE.
>
> ***Monte Verde*:** a brown tuff quarried at the base of the Janiculum Hill. Quarried from the second century BCE.

***Peperino* (*lapis Albanus*):** a dense and durable tuff quarried in the Alban Hills, especially in the vicinity of Marino. Used extensively from the mid-republican period (fourth–third centuries BCE) and well into the imperial period.

***Sperone* (or *lapis Gabinus*):** quarried near Gabii, and similar in color to peperino (but with a heavier grain and more pronounced inclusions, or *scoria*); used extensively during both the Late Republic and the early imperial period.

***Tumulus*:** a mound of earth that covers a tomb. Generally the mound is encircled by a wall of masonry. *Tumuli* are found both in Etruscan and Roman necropoleis.

Tuscan order (Figure G1): a Roman order similar to the Doric (s.v.). Tuscan columns and pilasters have a capital similar to that of the Greek Doric capital; however the columns are usually unfluted and include a base.

***Tympanum*:** the triangular area framed by a pediment (s.v.); also a recessed panel on a door.

***Ustrinum*:** the platform upon which a funeral pyre is built. In Rome, the *ustrina* of emperors became permanent monuments that marked the location of apotheosis.

***Valvae* (sing. *valva*):** a double-leaved door, a common form of door in both private and public buildings.

***Vela* (or *velarium*):** the "sail" of linen cloth used to cover in part an amphitheater or a theater.

***Vestibulum*:** the transition point or space between the street and the entrance hall (*fauces*, s.v.) of a Roman house.

Villa: a residence in a country or seaside setting.

***Viridarium*:** see *hortus.*

Volute (Figure G1): a spiral, particularly that found on the corners of an Ionic (s.v.), Corinthian (s.v.), or composite (s.v.) capital.

Voussoir (Figure 5.6): a wedge-shaped stone or brick used to build an arch. The lowest voussoir is called the springer; that at the apex of the arch the keystone.

Wattle-and-daub: see *opus craticium*

***Xystus*:** a formal Roman pleasure garden with trees and flowers, a covered walkway for exercise. See also *ambulatio* and *hortus.*

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